পঞ্জীভুক্ত নম্বৰ - ৭৬৮ /৯৭ Registered No.-768/97

অসম ৰাজপত্ৰ

সত্যমেব জয়তে

THE ASSAM GAZETTE

অসাধাৰণ

EXTRAORDINARY

প্ৰাপ্ত কৰ্ত্তৃত্বৰ দ্বাৰা প্ৰকাশিত

PUBLISHED BY THE AUTHORITY

নং 414 দিশপুৰ, শনিবাৰ, 7 ছেপ্টেম্বৰ 2024, 16 ভাদ, 1946 (শক)

No. 414 Dispur, Saturday, 7th September, 2024, 16th Bhadra, 1946 (S. E.)

GOVERNMENT OF ASSAM

ORDERS BY THE GOVERNOR

DEPARTMENT OF HOUSING AND URBAN AFFAIRS

NOTIFICATION

The 11th July, 2024

DoHUA ECF No. 450508/2024/39- In exercise of the powers conferred by the Sub- Section (2) and (3) of Section 10 of the Assam Town and Country Planning Act, 1959 (as amended) read with Rule 6 of the Assam Town & Country Planning (Publication of Master Plan and Zoning Regulation) Rules, 1962, the Governor of Assam is pleased to publish the following notice regarding the publication of the Final Master Plan for Dhing.

Notice for publication of the Final Master Plan for Dhing

1. It is notified that the Final Master Plan for Dhing is prepared by the Directorate of Town & Country Planning, Government of Assam and adopted by the State Government under sub-section (2) and (3) of Section 10 of the Assam Town & Country Planning Act, 1959 (as amended) read with Section 6 of the Assam Town and Country Planning (Amendment) Rule, 1962 for the area described in the schedule below, is hereby published.
2. The Final Master Plan with all relevant papers and maps may be inspected free of cost during the office hours at the office of Director, Town & Country Planning, Dispur, Guwahati-6, Deputy Director, Town & Country Planning. Dist Office - Nagaon, office of the Chairman, Dhing Municipal Board and Dhing Revenue Circle Office. Copies of the Final Master Plan is also available in the office of the Director, Town & Country Planning, Dispur, Guwahati-6 and Deputy Director, Town & Country Planning, Dist Office - Nagaon for sale on payment.

SCHEDULE

A. Situation and area:

District : Nagaon

Subdivision : Nagaon.

State : Assam.

Master Plan Area : 38.34 Sq.Km.

Dhing Municipal Board Area : 14.10 Sq.Km.

Apart from the Dhing Municipal Board Area, Dhing Master Plan area covers 12 Nos. of nearby villages. The Revenue villages included in the Final Master Plan for Dhing with Mouza's are as follows:-

SL. No.	Revenue Village	Revenue Circle	Mouza	Gaon Panchayat
1	Auni Ati Satra	Dhing Circle	Dhing Mouza	Bilatia G.P/Some portions falls under Municipal Area
2	Magur mari		Dhing	Kandhulimari G.P
3	Dhakaya Basti		Batadraba	Sologuri Panchayat
4	Auni Ati Kheraj		Dhing Mouza	Bilatia G.P/Some portions falls under Municipal Area
5	Dhupguri Kachari Gaon		Batadraba	Saharia G.P
6	Saharia Gaon		Batadraba	Saharia G.P
7	Lahkar Ghat		Dhing	Lahkarghat G.P
8	Athgaon Chapori		Dhing	Lahkarghat G.P
9	Barbheti		Dhing	Barbheti G.P
10	Sonari Gaon		Dhing	Barbheti G.P
11	Niz Dhing		Dhing	Niz Dhing G.P/Some portion falls under Municipal Area
12	Bilatia Gaon		Dhing	Bilatia G.P/Some portion falls under Municipal Area

Description of boundaries:

NORTH :-Kazali Pathar, Sunseri, Kandhuli mari No.1
SOUTH :-Baruati, Dhupgurigaon, Baligaon
EAST :-Salaguri, Dhupguri Pathar
WEST :-Gayan Gaon, Panbari Satra

PABITRA RAM KHAUND,
Secretary to the Government of Assam,
Department of Housing and Urban Affairs,
Dispur, Guwahati-6

CHAPTER 1
INTRODUCTION TO MASTER PLAN AREA

Dhing is a small town located at the North-West part of Nagaon district in the state of Assam. It is situated at a distance of around 25 kilometers from Nagaon town and 145 Km east of the State Capital, Dispur, Assam. Dhing is located on the bank of the Brahmaputra River.

Initially, Dhing Town Committee was established in 1970 getting permission of Gazette Notification and awarded to Dhing Town by the Government of Assam to establish a Town Committee for providing the basic infrastructure facilities to the inhabitants of the town. The Town Committee was established and run-in accordance with the provisions laid down in the Assam Municipal Act of 1956. The Administration of Dhing MB is 10 Nos. of Municipal wards with a population of 19,235 in the town as per 2011 census. The Town Committee was upgraded to Dhing Municipal Board in the year of 2012 by Govt. of Assam.

Dhing is connected with Guwahati by a broad-gauge railway track. The road via Baruwati and Morigaon is the shortest road to Guwahati. The historically important place Bardowa is on the way to Dhing from Nagaon town.

The demarcation of the planning area of Dhing has been made considering the present growth of the town, the physical feature of the surrounding areas, communication network, different type of developmental works already come up in nearby villages and potential for future development of the region. The town has been growing towards Dhing- Nagaon Road, Dhing –Moirabari road and Dhing – Tuk Tuki-Jajori Road.

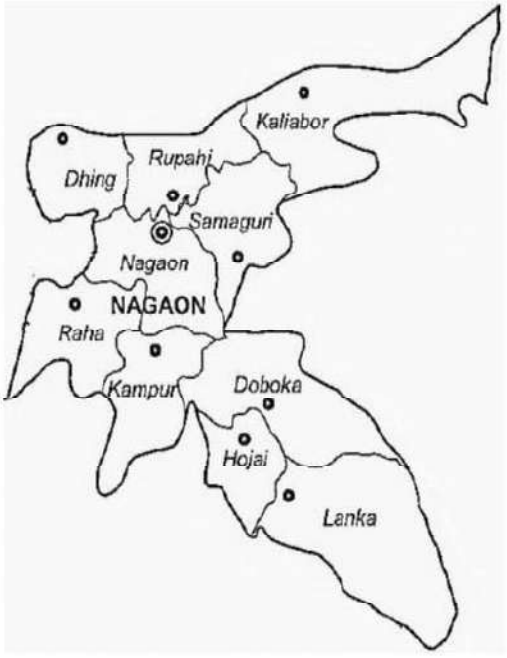
Before finalization of the planning area ,discussion were held with district level officers dealing with developmental works headed by Deputy Commissioner, Nagaon and with the official of Dhing Municipality Board along with the different local stakeholder's of the Town.

The Dhing town area has been growing haphazardly and this has created enormous problems to the habitant of the town. In this context, "Final Master Plan Dhing 2045" is prepared to guide the physical development of the Town with some surrounding villages seen future.

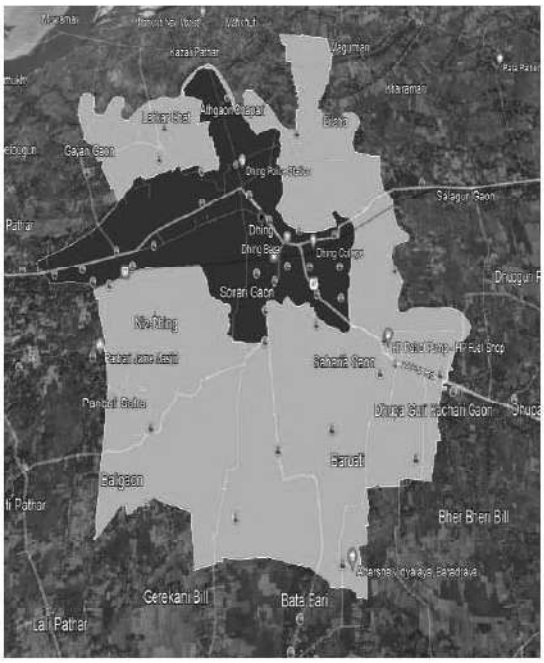
This plan is prepared basically a Land Use Plan considering all the Urban Development Aspects, with forecasting all the service up to 2045. By and large, this Master Plan has been prepared as per the provision of Urban Development Plans, Formulation and Implementation, Guidelines,1996, prepared by the Institute of Town Planners, India New Delhi under the Ministry of Housing and Urban affairs Govt. of India, New Delhi and circular issued by Directorate, Town & Country Planning, Govt. of Assam time to time. Uniform Zoning Regulations are considered as it is already approved for all the Towns of Assam including Dhing Town by the Govt. of Assam.

1.1 LOCATION:

Dhing is a part of Nagaon District in the Central Region of Assam. It Is Located at 26.47°North Latitude and 92.47°E Longitude. It is situated at a distance of approximately 25 K.ms towards Northwest from the District Headquarter Nagaon Town and 145 K.m east of the state capital, Dispur, Assam. It Is Located on the Bank of the Brahmaputra River.



Nagaon District
Figure-1



Dhing Master Plan Area
Figure-2

1.2 BRIEF HISTORICAL DEVELOPMENT OF DHING:

Dhing is a small town in Nagaon district of central part of Assam located on the banks of the River Brahmaputra. Dhing is situated 25 km. from the district headquarters at Nagaon. The nearest railway station is at Dhing. Greater Dhing region is surrounded by Laokhowa Wildlife Sanctuary in the east, Bordowa in the south, Moirabari, in the west and Brahmaputra River in the north. It is located at 26.47° North latitude and 92.47° East longitude. It is situated at a height of 58 metres (190 feet) above mean sea level.

According to the 2011 census report, Dhing had a population of 19,235 inhabitants. 51% of the population consists of males while 49% of the population is females. In Dhing, 12% of the population is less than six years of age. Dhing has an average literacy rate of 73%, which is higher than the national average of 59.5%. The male literacy rate is 78% and, the female literacy rate is 68%

The Industrial Estate is located on the southern bank of Brahmaputra River in North –West part of Dhing Town. It is within the Dhing urban area connected from district head quarter of Nagaon District at a distance of 26.00 KM via Nagaon- Dhing-Bhuragaon State High Way. It is also connected with Guwahati by a broad gauge railway.

Industrial Estate at IPAL Dhing Dist: Nagaon, Assam, Under the Scheme: Promotion of MSMEs in N.E. Region and Sikkim under Ministry of Micro, Small & Medium Enterprises, Govt. of India

Dhing Town is an interesting place to visit, given its unique culture, history and character. The great poet saint of Assam, Srimanta Sankardeva , was born in the year 1449 at a small village called Alipukhuri-Patekibori near Dhing, Moirabari in Morigaon district. He was the son of Shri Kusumbar Shiromoni Bhuyan and Smt. Satya Sandhya. This multi- faceted genius remodelled the Assamese society by removing inequalities and un-touchability among people and gave the society a new religion, literature, poetry music, drama, etc. On the whole, Sankardeva gave a new concept and culture to the Assamese society. This multi- dimensional personality of Assam left for heavenly abode in the year 1568. However, he shifted his Karmabhumi from his birthplace to Bordowa, which is in Nagaon District and about 9 KM from this place.

1.3 History of Batadrava Than:

Srimanta Sankaradeva used this indigenous Assamese word 'Than' to indicate the residential religious institution created by him. At that time the word 'Sattra' was not used. Srimanta Sankaradeva himself used the word 'Than'. It was only later that the word 'Sattra' started to be used. Batadrava Than in Bordowa in the present Nagaon district of Assam is one of the best known Than founded by Srimanta Sankaradeva. It is named as SRI SRI BATADRAVA THAN. Srimanta Sankaradeva set up the first ever Kirtanghar here in 1468.

The importance of this place is also derived from the fact that the saint was born at Alipukhuri – Bordowa in 1449. After returning from his 12 year long pilgrimage in 1493, he started preaching his Vaishnavite religious ideas here regularly and systematically. His ideas were based on Bhagavata Purana. Batadrava Than is the first Than or the first institution set up by Srimanta Sankaradeva for propagation of Eka Sarana Nama Dharma founded by him. He also built the 'Monikut' together with Kirtanghar or Namghar and the 'Cari-Hati' (four clusters of quarters) for accommodation of his disciples.

Batadrava Than

Figure-3

This full-fledged Than complex came up in 1509. Simhasana or Guru Asana (altar of God) was placed in the Monikut with the Holy Scripture 'Bhagavata' on it without any idol. Srimanta Sankaradeva used to practise Nama Prasanga regularly in the Kirtanghar along with his follower devotees. His religion Eka Sarana Nama Dharma is very simple. There is no unnecessary ritual in his order. Srimanta Sankaradeva advocated 'EKA Deva, Eka Seva, Eka Biney Nahi Kewa', which means one should worship none but one God, who is Lord Krishna. Batadrava or Bordowa became the centre of his religious activities. As such, Batadrava has been regarded as the Dvitiya Vaikuntha (second heaven).

The Than founded by Srimanta Sankaradeva are Gangmou, Belaguri, Patbausi, Kumarkuchi, Sunpora, and Madhupur. Later many Sattra's were set up by his followers all over the Brahmaputra valley.

All these were designed like Batadrava Than. But of all these Thans and Sattras, Batadrava Than is the unique one. Devotees visiting different Thans/Satras as well as the prominent sacred places and temples in Jaganath Puri, Brindavan, Badarikasram, Gaya, Kashi etc. consider Batadrava as one of the principal places of worship. Visit to this Than makes one's holy journey complete. Srimanta Sankaradeva used to write scriptures sitting below one Shilikha (Myrobalan) tree near the Kirtanghar. That tree is still alive even after five and half centuries, which is a wonder.

1.4 CLIMATE:

Climate and average weather year round in Dhing, the wet season is hot, oppressive, and partly cloudy and the dry season is warm and clear. Over the course of the year, the temperature typically varies from 53°F to 89°F and is rarely below 49°F or above 95°F.Based on the beach/pool score, the best times of year to visit Dhing for hot-weather activities are from late March to early May and from mid-October to mid-November.

Table 1: Climatic condition of Dhing

Sl. No.	Parameter	Description
1.	Topography	Mostly Alluvial Flood Plain
2.	Temperature	38.40 Degree C (Max.) 8.60 Degree C (Min)
3.	Extreme months	July in Summer and December in Winter
4.	Coldest month of the Year	December
5.	Humidity	75% (Max)
6.	Rainfall	1726.05 MM (Annually)
7.	Monsoon Period	53 rainy Days
8.	Winter Season	November to February

1.5 TOPOGRAPHY:

Dhing town is situated on the flat alluvial plain which slopes towards North and northwest where the old beds of the Brahmaputra River are still in existence. Many Beels, ponds and marshes surrounded the town as well as the Master Plan Area. The Talibor Beel lies in the South-East of the town. The Beel and marshes are teemed with verities of fishes and birds. The land is alluvial and loamy and consists of clay and sand. The cultivable land is scattered either sides of the beels as well as the surrounding villages nearest to the town. In considering the high land as well as the physical features of the surrounding areas, the Town is growing mainly towards south-east towards the State Highway-47. Some developments have also taken place along other major roads connecting in some trading centres in the District.

1.6 TOWN INFLUENCE AND ITS CHARACTERISTICS INCLUDING SETTLEMENT PATTERN, RURAL-URBAN SCENARIO, HISTORY OF THE PHYSICAL GROWTH AND EXPANSION OF DHINGTOWN:

Rural-Urban fringe is an important concept in settlement geography. The rural- urban fringe is the boundary zone outside the urban area proper where rural and urban land uses intermix. It is the area where the town meets the countryside. It is an area of transition from agricultural and other rural land uses to urban use. Located well within the urban sphere of influence the fringe is characterized by a wide variety of land use including dormitory settlements housing middle-income commuters who work in the central urban area. Over time the characteristics of the fringe change from largely rural to largely urban. Suburbanization takes place at the municipal boundary of rural-urban fringe. The main economy of the Dhing rural-urban fringe is agriculture base. The surrounding small villages were also influence the main urban centre. The trading of agricultural finished goods produce in the rural-urban fringe area was taking place with the main urban centre. While considering the agro base economy of the rural-urban fringe, secondary and other allied services has to be initiated to boast up the economic growth of the main urban centre as well as the whole Dhing planning area. The main reason of low profile economy of the town is that less number of people is engaged in secondary, quaternary and other allied services. Activities related to trade and commerce and transportation alone comprise only 32% of the total employment of the town.

It is expected that employment related to transportation and trade & Commerce is going to increase further after the road linkage is established with the town and surrounding villages is provided then the town cannot only upgrade its economic base but also act as a centre for industrial activities of the whole Dhing planning region. Lack of infrastructure is also responsible in a substantial manner for economic and industrial development of the Dhing town. If adequate urban infrastructure such as efficient transportation network well planned market etc, is provided, there is future possibility of the development of the town. Therefore, the prime objective of the development strategy of Dhing town will be to bring positive development in the town by improving existing physical infrastructure of the town, so as to encourage more and more people to participation in the secondary and tertiary sector or employment. This will generate more employment in the town, strengthen the local bodies as well as improve the socio-economic condition of the people. At present it is observed that different type of developmental works already come up in nearby villages and potential for future development of the region. The town has been growing towards Dhing - Nagaon Road, Dhing-Tuk Tuki Road and Dhing –Moirabari Road. Some major developments also come along the Dhing - Nagaon Road connecting NH-37.

Settlement Pattern, Dhing, 2002

Figure-4

Settlement Pattern, Dhing, 2011

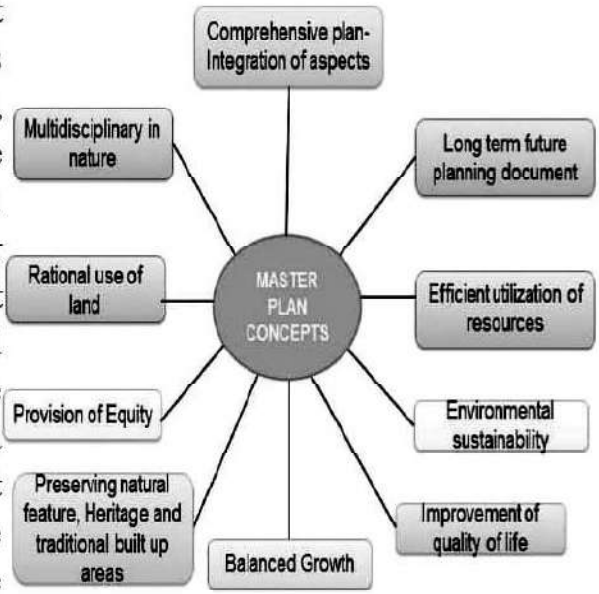
Figure-5

Figure-6

Settlement Pattern Dhing, 2022

1.7 CONCEPT OF MASTER PLAN:

Master Plan is a comprehensive plan that integrates various aspects of planning like housing, transportation, infrastructure etc. All the aspects are considered that affects the quality of life of people and all the interrelationships between various aspects; Multi-disciplinary in nature: it encompasses various disciplines of studies like social aspects, economics, environment, engineering, architecture etc.; Master plan is a long term document. It clears out the vision for prospective year for the town and plans out development for future; Master plan focuses on rational use of land that is demarking land for the use most optimal for the activity at a place. It efficiently uses resources to meet the present and future requirements of the citizens; Master plan should consider the environmental and costs related to it.



The proposals for development should be environmentally sustainable. Master Plan is based on inclusive planning. It considers all sections of people in society in development proposals and focuses on affordability. ; Master plan gives restrictions on ecologically sensitive areas, on heritage sites and traditional built up areas and gives special norms for these places. ; Master Plan leads to a balanced growth of the town. It prevents concentration of a particular activity at one place and takes into account efficient distribution of facilities, infrastructure, networks and housing and follows neighbourhood concept of development.

1.8 NEED OF A MASTER PLAN FOR DHING TOWN:

A master plan or a development plan or a town plan may be defined as a general plan for the future layout of a town showing both the existing and proposed Land use plan. A master plan is prepared either for improvement of an old town or for a new town to be developed on a virgin soil. A master plan is a blueprint for the future. It is a comprehensive document, long-range in its view; that is intended to guide development in the township for the next 20 to 25years.

It helps in restricting the haphazard and unplanned growth, arranges the pattern of a town in such a way so as to satisfy the present requirements without introduction of future improvements by the coming generations. It also aims at intelligent and economic spending of the public funds for achieving welfare of the inhabitants in respect of amenity, convenience and health.

On the other hand Master Plan also serves as a guide to the planning body for making any recommendations for public improvement. It removes the defects of uncoordinated physical growth of the various components of a town due to the fact that it considers the entire town area or town as planning and development entity.

To offset the evils which have come up due to over-crowding of population such as acute shortage of houses, traffic congestion, inadequate open spaces and insufficiency in public amenities etc., to incorporate the unforeseen development and arranges the pattern of township and in restricting the haphazard and unplanned growth have led to the thinking of Preparation of GIS based Master Plan for Dhing town.

1.9 DHING AS A URBAN LOCALBODY:

Dhing Municipal Board:

Initially Dhing Town Committee was established in 1970 getting permission of Gazette Notification and awarded to Dhing Town by the Government of Assam to establish a Town Committee for providing the basic infrastructure facilities to the inhabitants of the town. The Town Committee was established and run in accordance with the provisions laid down in the Assam Municipal Act of 1956. Dhing town comes under the Administration of Dhing Town Committee with 10 Nos. of wards. The Town Committee was upgraded to Dhing Municipality Board in the year of 2012 getting permission from the Govt.

At present Dhing Municipal Board consists of 10 Nos. of wards in the town with a population of 19,235 as per 2011 census where 9946 nos. of male population and 9289 nos. of female population. The density of population is 1364 persons per sq. km. Total area of Dhing Municipal Board is 14.10 sq. km. with total road length of 104 Km and drain length of 6.51 Km. Dhing Municipal Board consists of the Chairman, Vice-Chairman and ward commissioners and ward commissioners are elected representatives of the wards.

Dhing Municipal Board Office *Figure-7*

Dhing Municipal Board also maintains recreational parks, libraries, community halls and municipal markets. It has also maintains solid waste management system. Dhing Municipal Board collected 50% garbage from the total garbage generation from door to door collection of the total inhabitants and disposes it in some convenient places. Dhing Municipality Boards has various sources of revenue collection and also receive annual grants from the Government. It levies taxes on holdings, rickshaws, carts, cycles, stalls, open spaces, markets and receives taxes on houses, land, water and sanitation.

Table 2: Ward-Wise Population

Sl. No.	Ward	Population	Literacy	Sex Ratio
1	Ward No - 1	2,018	81.7%	988
2	Ward No - 2	749	84.9%	951
3	Ward No - 3	935	77.6%	912
4	Ward No - 4	3,964	80.9%	911
5	Ward No - 5	1,989	83.8%	987
6	Ward No - 6	2,292	79.8%	899
7	Ward No - 7	1,268	90.9%	1,079
8	Ward No - 8	1,380	85.7%	938
9	Ward No - 9	1,399	90.0%	891
10	Ward No - 10	3,241	54.9%	891
	Total	19,235		

(Source: Census of India, 2011)

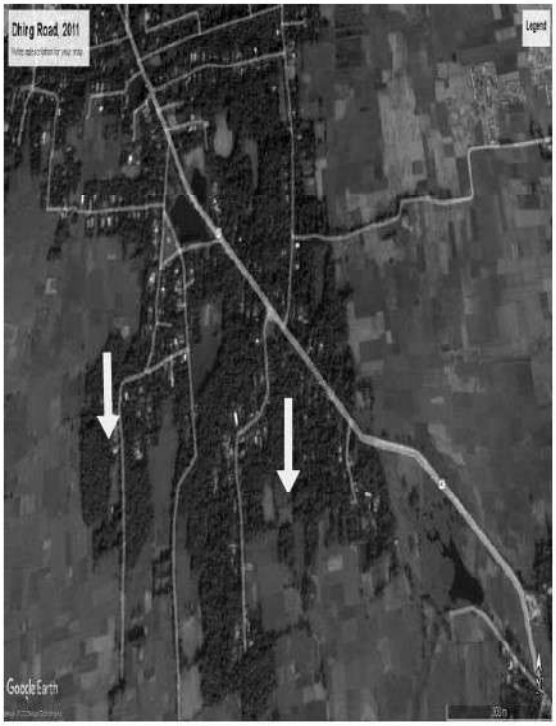
1.10 DHING TOWN GROWTHS AND ITS EXPANSION

The Dhing Town has made considerable growth for the last 1 decade, basically growth of Dhing town is based on the Rural agro-based finish product for market centric, the physical feature of the surrounding areas, communication network, different type of developmental works already come up in nearby villages and potential for future development of the region. The town has been growing towards Dhing Road, Dhing-Moirabari-Bhuragaon Road, Dhing-Tuktuki-Jajori Road. Initially Dhing Town Committee was established in 1970. The Town Committee was established and run-in accordance with the provisions laid down in the Assam Municipal Act of 1956. Dhing town comes under the Administration of Dhing Town Committee with 10 Nos. of wards. The Town Committee was upgraded to Dhing Municipality Board in the year of 2012 getting permission from the Govt.

Before finalization of the planning area ,discussion were held with district level officers dealing with developmental works headed by Deputy Commissioner, Nagaon and the elected representative of Dhing Municipal Board. It was observed that Dhing town area has been growing haphazardly and this has created enormous problems to the habitant of the town. In this context, "Final Master Plan Dhing, 2045 is prepared to guide the physical development of the town with some surrounding villages in future.

Dhing Town expansion, Dhing Road (South-Eastern Direction)

Dhing Town, 2002 *Figure-8*



Dhing Town, 2011 *Figure-9*

Dhing Town, 2016 *Figure-10*

Dhing Town, 2022 *Figure-11*

Dhing Town expansion, Dhing-Tuk-Tuki-Juria Road (Southern Direction)

Dhing Town, 2002 *Figue-12*

Dhing Town, 2011 *Figure-13*

Dhing Town, 2022 *Figure-14*

CHAPTER 2
DEMOGRAPHY

The scientific or more specifically statistical study of population, its size, density, distribution and growth are known as demography. The study of population and its relating characteristics are the basic factor for long range planning works in a town or a town. The study of change in the population and its distribution and composition are also enabling to force the growth of the urban area. The important demographic aspects like housing facilities, urban infrastructure development both for present and future should be thoroughly studied during the preparation of any development plan. An analysis of demographic features like growth of population, its distribution & composition etc. is absolutely necessary to assess the various civic needs like housing facilities, urban infrastructure and other basic services and the amenities. These important aspects of demography both present and future have been thoroughly studied at the time of preparation of Dhing Master Plan.

2.1 GROWTH OF POPULATION:

Though the Dhing Town Committee was created in the year 1970 and later it was upgraded to Dhing Municipal Board in the year 2012.To better understand the growth of population of the planning area last 5 decades of population had been calculated from 1951 to 2011. The population of Dhing town as per 1971, then census town was 10,778 and it has increased to 17,844 in 2001 and 19,235 in 2011 as per census of India. The population of Dhing Master Plan area shows a steady growth. Following table shows the growth of population of Dhing Town Area as well as the rural area.

Table 3: Trend of Population Growth in Dhing Master Plan Area:

Year	Dhing MB Population	Growth Rate	Dhing Master Plan Population excluding Dhing MB Population	Growth Rate	Dhing MP Total Population	Growth Rate
1951	3564		10323		13887	
1961	6564	84.18	11229	8.78	17793	28.13
1971	10778	64.20	12142	8.13	22920	28.81
1991	11472	6.44	18258	50.37	29730	29.71
2001	17844	55.54	19562	7.14	37406	25.82
2011	19235	7.80	27818	42.20	47053	25.79

(Source: Census of India, 2011)

2.2 POPULATION CHARACTERISTICS:

Table 4: Existing population of Dhing Master Plan Area as per 2011 census

Sl. No.	Master Plan Area	Population (2011)	P.C (%)
1	Dhing Municipal Area	19,235	40.88
2.	Village Area	27,818	59.12
	Total Population	47,053	100%

(Source: Census of India, 2011)

The Dhing is a Municipal town situated in Dhing circle of Nagaon district. The Dhing town is divided into 10 wards for which elections are held every 5 years. As per the Population Census 2011, there are total 4,179 families residing in the Dhing town. The total population under Dhing Municipal Board area is 19,235 out of which 9,946 are males and 9,289 are females, thus the Average Sex Ratio of Dhing Town is 934.The population of Children of age 0-6 years in Dhing town is 1965 which is 10% of the total population. There are 1023 male children and 942 female children between the ages 0-6 years. Thus, as per the Census 2011 the Child Sex Ratio of Dhing is 921 which is less than Average Sex Ratio (934).As per the Census 2011, the literacy rate of Dhing is 87.3%. Thus Dhing has higher literacy rate compared to 72.4% of Nagaon district. The male literacy rate is 90.77% and the female literacy rate is 83.69% in Dhing.

Where, the total population of the Rural Areas outside the Dhing Municipal Plan Board Area is 27,818. Over all, the total population of the Dhing Master Plan area is 47,053 as per 2011 census.

Table:-5 DHING MASTER PLAN POPULATION AS PER 2011 CENSUS

Sl. No.	Name of the Village/MB Area	Total Households	Total Population of Village	Total Male Population of Village	Total Female Population of Village	Total Scheduled Castes Population of Village	Total Scheduled Tribes Population of Village
1	Dhing (MB)	4179	19235	9946	9289	2488	55
TOTAL URBAN		4,179	19,235	9,946	9,289	2,488	55
1	Lahkar Ghat	1006	4997	2544	2453	635	5
2	Athgaon Chapari	87	427	222	205	210	1
3	Niz-Dhing	221	1081	553	528	146	0
4	Barbheti	612	3092	1574	1518	0	0
5	Sonari Gaon	645	3183	1624	1559	0	0
6	Magurmari	161	914	475	439	0	0
7	Auniati Satra	224	1150	564	586	0	0
8	Auniati Kheraj	129	582	320	262	0	0
9	Dhakaya Basti	666	3252	1686	1566	0	0
10	Dhupa Guri Kachari Gaon	857	4479	2270	2209	472	12
11	Saharia Gaon	275	1546	795	751	0	443
12	Bilatia	579	3115	1588	1527	26	0
TOTAL RURAL		**5462**	**27818**	**14215**	**13603**	**1489**	**461**
TOTAL URBAN + RURAL		**9641**	**47053**	**24161**	**22892**	**3977**	**516**

(Source: Census of India, 2011)

2.3 DENSITY OF POPULATION:

The number of population and the size of development of the town or town imply the density of population. Generally, the pressure of population from rural to urban area increases in search of better jobs, educational facilities, source of income, trade and commerce etc. The density of population of Nagaon District as per 2001 was 604 persons per sq. km. and it has increased to 711 persons per sq. km in 2011 census.

The density of population of Dhing MB area as per 2011 is 1364 persons per sq. km. Accordingly, as per 2011 census of India and survey records the density of population in Dhing Master Plan Area is 1148 persons per sq. km.

Table 6: Population Density of Dhing Master Plan Area as 2011

Sl. No.	Dhing Master Plan Area	Area	Population	Pop. Density /Sq.km
1	Dhing M.B Area	14.10 Sq. km.	19,235	1364
2	Village Area	24.24Sq. Km	27,818	1148
3	Dhing Master Plan	38.34 Sq. km	47.053	1228

(Source-Census of India)

2.4 SEX-RATIO:

The total population of the Dhing M.B area is 19,235 persons (2011). It is seen that per every 1000 men there were 934 females in Dhing M.B as per Census 2011, the Child Sex Ratio was 921 which is less than Average Sex Ratio (934) of Dhing. Child Population of Dhing according to Census 2011, there were 1965 children between age 0 to 6 years in Dhing. Out of which 1023 were male while 942 were female. In the Master Plan Area (excluding the MB area), the sex ratio is slightly high that the town area, there is 957 females every 1000 males. In whole Dhing Master Plan Area, there are 947 female per 1000 males.

Table 7: Sex Ratio of Dhing Master Plan Area:

Sl. No.	Dhing Master Plan Area	Population	Sex Ratio	
			Male	Female
1.	Dhing M.B Area	19,235	9946	9289
2.	Village Area	27,818	14215	13,603
	Dhing Master Plan	47,053	24,161	22,892

(Source-Census of India)

2.5 LITERACY RATE:

As per the Census 2011, the **literacy rate of Dhing Town is 87.3%.** Thus, Dhing has higher literacy rate compared to 72.4% of Nagaon district. The male literacy rate is 90.77% and the female literacy rate is 83.69% in Dhing. Dhing MB has total administration over 4,179 houses to which it supplies basic amenities such as water and sewerage. It is also authorize to build roads within Municipality Board limits and impose taxes on properties coming under its jurisdiction.

2.6 SIZE OF THE HOUSEHOLD:

The 2011 Census shown that more than half of the household in the region were medium sized with an average member of 3 to 5. According to census 2011, the medium sized households (3-4) are predominant because of the increasing trends towards nuclear households and rapid urbanization is at higher rate, there will be considerable pressure on housing in coming future. The overall household size of Dhing Master Plan Area is 4.88. Household size is lowest in Dhing Municipal area which is 4.6 and highest in rural areas which is 5.09

Table 8: Area wise household details of Dhing Master Plan Area

Sl. No	Name of Area	Population	No. of Household	Household size
1	Dhing MB (10 Wards)	19,235	4,179	4.6
2	Village Area (12 Villages)	27,818	5,462	5.09
Dhing Master Plan Area		47,053	9,641	4.88

(Source: Census of India, 2011 and T&CP Compilation)

2.7 POPULATION PROJECTION

Population projections are attempts to show how the human population living today will change in the future. These projections are an important input to forecasts of the population's impact on this planet and humanity's future well- being. Models of population growth take trends in human development, and apply projections into the future. These models use trend-based-assumptions about how populations will respond to economic, social and technological forces to understand how they will affect fertility and mortality, and thus population growth.

Population projection is a scientific/mathematical attempt to peep into the future population scenario, conditioned by making certain assumptions using data to the past available at the point of time.

It is mandatory for Government policy makers and planners to determine the future demand for basic human needs such as food, water, education, health, energy, and other services and to forecast future demography characteristics.

The population projection of Dhing Master Plan area, separately for Municipal area and rural area has been done by utilizing the maximum possible accuracy. Mainly Geometric progression method has been used to determine the future projected population of Dhing Master Plan Area.

Geometric Progression Method: - Geometric mean increase is used to find out the future increment in population. Since this method gives higher values and hence should be applied for a new industrial town at the beginning of development for only few decades.

Table-9 DHING MASTER PLAN POPULATION
(as per 2011 census)

Sl. No.	Name of the Village/MB Area	Total Households	Total Population of Village	Total Male Population of Village	Total Female Population of Village	Total Scheduled Castes Population of Village	Total Scheduled Tribes Population of Village
1	Dhing (MB)	4179	19235	9946	9289	2488	55
TOTAL URBAN		**4,179**	**19,235**	**9,946**	**9,289**	**2,488**	**55**
1	Lahkar Ghat	1006	4997	2544	2453	635	5
2	Athgaon Chapari	87	427	222	205	210	1
3	Niz-Dhing	221	1081	553	528	146	0
4	Barbheti	612	3092	1574	1518	0	0
5	Sonari Gaon	645	3183	1624	1559	0	0
6	Magunari	161	914	475	439	0	0
7	Auniati Satra	224	1150	564	586	0	0
8	Auniati Kheraj	129	582	320	262	0	0
9	Dhakaya Basti	666	3252	1686	1566	0	0
10	Dhupa Guri Kachari Gaon	857	4479	2270	2209	472	12
11	Saharia Gaon	275	1546	795	751	0	443
12	Bilatia	579	3115	1588	1527	26	0
TOTAL RURAL		**5,462**	**27,818**	**14,215**	**13,,603**	**1,489**	**461**
TOTAL URBAN + RURAL		**9,641**	**47,053**	**24,161**	**22892**	**3,977**	**516**

Source:- Census of India

Table-10 DHING MASTER PLAN POPULATION
(as per 2001 census)

Sl. No.	Name of the Village/MB Area	Total Household	Total Population	Total Male Population	Total Female Population	Total Scheduled Caste Population	Total scheduled Tribe population
1	Dhing T.C	3447	17,844	9142	8702	2704	43
TOTAL URBAN		**3,447**	**17,844**	**9,142**	**8,702**	**2704**	**43**
1	Auni Ati Satra	176	1026	497	529	312	--
2	Magur mari	95	638	334	304	--	--
3	Dhakaya Basti	460	2501	1308	1193	--	--
4	Auni Ati Kheraj	96	495	260	235	--	--
5	Dhupguri Kachari Gaon	187	1317	700	617	--	478
6	Saharia Gaon	197	1245	626	619	---	997
7	Lahkar Ghat	604	3535	1824	1711	538	1
8	Athgaon Chapori	73	389	207	182	208	--
9	Barbheti	385	2368	2119	1149	32	--
10	Sonari Gaon	494	2780	1421	1359	--	--
11	Niz Dhing	184	958	480	478	147	--
12	Bilatia Gaon	443	2310	1179	1131	27	--
TOTAL RURAL		**3,394**	**19,562**	**10,955**	**9,507**	**1,264**	**1,476**
TOTAL URBAN + RURAL		**6.841**	**37.406**	**20.097**	**18.209**	**3.968**	**1.519**

Source:- Census of India

Table:-11 DHING MASTER PLAN POPULATION
(as per 1991 census)

Sl.No.	Name of the Village/MB Area	Total Household	Total Population	Total Male Population	Total Female Population	Total Scheduled Caste Population	Total scheduled Tribe population
1	Dhing T.C	1968	11472	5918	5554	2771	7
TOTAL URBAN		**1968**	**11472**	**5918**	**5554**	**2771**	**7**
1	Auni Ati Satra	161	953	477	476	244	--
2	Magur mari	69	476	241	235	--	--
3	Dhakaya Basti	313	1865	972	893	--	--
4	Auni Ati Kheraj	56	379	198	181	29	
5	Dhupguri Kachari Gaon	158	1146	586	560	--	406
6	Saharia Gaon	167	1114	569	545	--	910
7	Lahkar Ghat (Lakhan Goan)	461	2837	1461	1376	502	--
8	Athgaon Chapori	63	376	202	274	138	--
9	Barbheti	276	1732	869	863	--	--
10	Sonari Gaon	392	2311	1152	1159	--	--
11	Bilatia Gaon	342	1894	972	922	29	--
12	Niz Dhing	426	2482	1313	1171	168	1
13	Nam Dumdumia	129	693	357	336	--	1
TOTAL RURAL		**3,013**	**18,258**	**9,369**	**8,991**	**1,110**	**1,318**
TOTAL URBAN + RURAL		**4,981**	**29,730**	**15,287**	**14,545**	**3,881**	**1,325**

Source:- Census of India

Table:-12 DHING MASTER PLAN POPULATION
(as per 1971 census)

Sl.No.	Name of the Village/MB Area	Total Household	Total Population	Total Male Population	Total Female Population	Total Scheduled Caste Population	Total scheduled Tribe population
1	Dhing T.C	1523	10778	5939	4839	931	--
TOTAL URBAN		**1523**	**10778**	**5939**	**4839**	**931**	--
1	Auni Ati Satra	124	744	395	349	195	--
2	Magur mari	53	320	164	156	--	--
3	Dhakaya Basti	167	1169	619	550	--	--
4	Auni Ati Kheraj	48	291	154	137	21	
5	Dhupguri Kachari Gaon	134	805	417	388	--	289
6	Saharia Gaon	132	795	401	394		671
7	Lahkar Ghat	212	1484	766	718	351	--
8	Athgaon Chapori	52	315	160	155	150	--
9	Barbheti	163	1143	583	560	--	--
10	Sonari Gaon	236	1655	844	811	--	--
11	Bilatia Gaon	164	983	520	463	33	--
12	Niz Dhing	263	1840	969	871	175	--
13	Nam-Dumdumia	100	598	318	280	--	--
TOTAL RURAL		**1,848**	**12,142**	**6,310**	**5,832**	**925**	**960**
TOTAL URBAN + RURAL		**3,371**	**22,920**	**12,249**	**10,671**	**1,856**	**960**

Source:- Census of India

Table-13 DHING MASTER PLAN POPULATION
(as per 1961 census)

Sl. No.	Name of the Village/MB Area	Total Household	Total Population	Total Male Population	Total Female Population	Total Scheduled Caste Population	Total scheduled Tribe population
1	Dhing town	1248	6564	3780	2794	415	--
TOTAL URBAN		**1248**	**6564**	**3780**	**2794**	**415**	--
1	Auni Ati Satra	57	385	215	170	--	--
2	Magur mari	37	202	102	100	--	--
3	Dhakaya Basti	160	1133	621	504	--	--
4	Auni Ati Kheraj	60	440	232	208	150	--
5	Dhupguri Kachari Gaon	85	672	347	325	--	253
6	Saharia Gaon	85	711	356	355	--	761
7	Lahkar Ghat	227	2161	1167	994	294	48
8	Athgaon Chapori	51	315	159	156	--	--
9	Barbheti	233	862	441	421	--	--
10	Sonari Gaon	145	450	234	216	--	--
11	Bilatia Gaon	103	599	318	281	--	--
12	Niz Dhing	275	1565	830	735	144	--
13	Nam Dumdumia	302	1734	743	791	--	--
TOTAL RURAL		**1,820**	**11,229**	**5,765**	**5,256**	**588**	**1062**
TOTAL URBAN + RURAL		**3,068**	**17,793**	**9,545**	**8,050**	**1,003**	**1062**

Source: - Census of India

Table:-14 DHING MASTER PLAN POPULATION (as per 1951 census)

Sl. No.	Name of the Village/MB Area	Total Household	Total Population	Total Male Population	Total Female Population	Total Scheduled Caste Population	Total scheduled Tribe population
1	Dhing Town	446	3564	2043	1521	--	--
TOTAL URBAN		446	3564	2043	1521	--	--
1	Auni Ati Satra	80	488	269	219	--	--
2	Magur mari	32	163	83	80	--	--
3	Dhakaya Basti	136	804	454	350	--	--
4	Auni Ati Kheraj	32	200	102	98		
5	Dhupguri Kachari Gaon	69	580	291	289	--	--
6	Saharia Gaon	57	977	286	219	--	--
7	Lahkar Ghat	128	897	487	410	--	--
8	Athgaon Chapori	35	234	122	112	--	--
9	Barbheti	131	807	406	401	--	--
10	Sonari Gaon	190	1157	607	550	--	--
11	Bilatia Gaon	90	749	399	350	--	--
12	Niz Dhing	206	1397	747	650	--	--
13	Nam Dumdumia	346	1870	1003	867	--	--
TOTAL RURAL		**1,532**	**10,323**	**5,256**	**4595**	--	--
TOTAL URBAN + RURAL		**1,978**	**13,887**	**7,299**	**6,116**	--	--

Source: - Census of India

Table:- 15 EXISTIG POPULATION OF DHING MASTER PLAN
(AS PER CENSUS 1951 to 2011)

Year	Dhing MB Population	Growth Rate	Dhing MP Population excluding Dhing MB Population	Growth Rate	Dhing MP Population Total	Growth Rate	
1951	3564		10323		13887		
1961	6564	84.18	11229	8.78	17793	28.13	
1971	10778	64.20	12142	8.13	22920	28.81	
1991	11472	6.44	18258	50.37	29730	29.71	20 Years growth rate
2001	17844	55.54	19562	7.14	37406	25.82	
2011	19235	7.80	27818	42.20	27053	25.79	

Table:-16

	Dhing MB area	Village Area
STUDY OF GROWTH RATE	84.18	8.78
	64.20	8.13
	6.44	50.37
	55.54	7.14
	7.80	42.20
TOTAL SIX DECADES GROWTH RATE	**218.15**	**116.62**
AVERAGE GROWTH RATE	36.36	19.44
Say	**35.00**	**20.00**

Source:- T&CP compilation

Table:-17 POPULATION PROJECTIONS by GEOMETRIC PROGRESSION METHOD OF DHING MASTER PLAN AREA

Year	Dhing MB Population	Growth Rate	Dhing MP Population excluding Dhing MB Population	Growth Rate	Dhing MP Total Population	Growth Rate	
1951	3564		10323		13887		
1961	6564	84.18	11229	8.78	17793	28.13	
1971	10778	64.20	12142	8.13	22920	28.81	
1991	11472	6.44	18258	50.37	29730	29.71	20 Years growth rate
2001	17844	55.54	19562	7.14	37406	25.82	
2011	19235	7.80	27818	43.08	47053	25.79	
2021	25967	35.00	33587	20.00	59349	26.13	
2031	35056	35.00	40304	20.00	75114	26.56	
2041	47325	35.00	48365	20.00	95395	27.00	
2045	**55607**	**17.50**	**58038**	**10.00**	**113291**	**18.76**	5 years growth rate

Source:-T&CP compilation

Table:-18

Method	2001	2011	2021	2031	2041	2045
Geometric Progression Method	37,406	47,053	59,349 (P)	75,114 (P)	95,395 (P)	1,13,291(P)

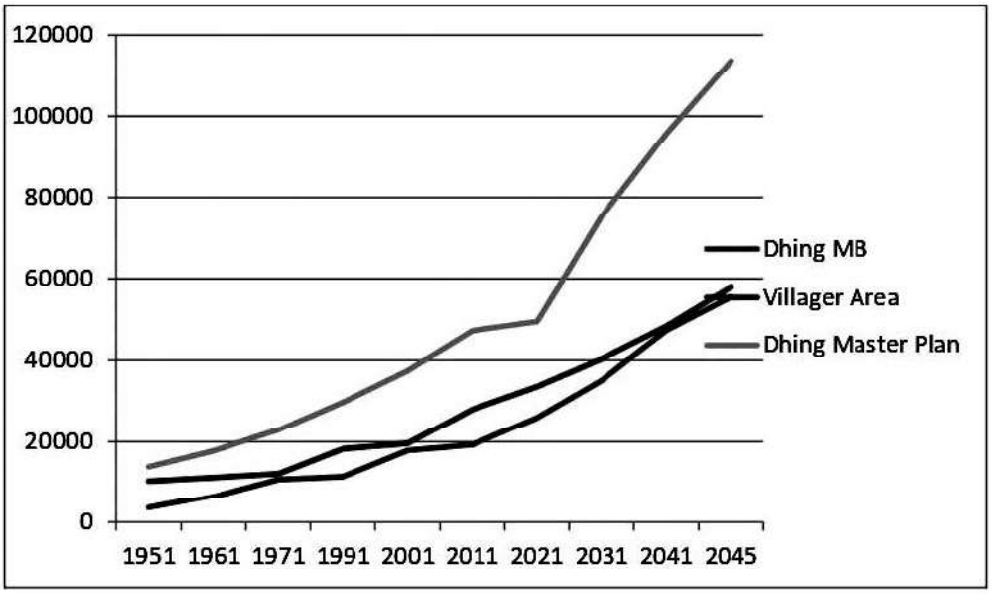


Figure-15

(Source-T&C.P compilation)

2.8 WORKING POPULATION AND NON-WORKING:

Working Population: In Dhing Municipal Area, out of total population, 6,252 were engaged in work activities. 86.9%of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 13.1%were involved in Marginal activity providing livelihood for less than 6 months. Of 5432 workers engaged in Main Work, 785 were cultivators (owner or co-owner) while 203 were Agricultural laborers.

Table 19: Working and non-working population Dhing MB Area:

Working Population	Total	Male	Female
Total worker	6252	5417	835
Main worker	5432	4759	673
Cultivators	785	775	10
Agricultural Labourer	203	191	12
Household Industry	202	169	33
Other workers	4242	3624	618
Marginal workers	820	658	162
Non-Working	12,983	4529	8454

(Source: Census of India, 2011)

***

CHAPTER 3
ECONOMIC BASE AND EMPLOYMENT

Socio-economic base employment is necessary and important in policy making issues, for the effective development of social policy and for evaluation of the impact of social and economic policies of a town or town.

Dhing as a Municipal Town provides various categories of employment related with both formal and informal sector such as Administrative units, Agriculture, Banks and financial institution, Civil Supply, Consumer affairs, Co-operatives, crime and law, economy, education, Health, Housing, industries, insurance, social welfare schemes, welfare, sports and welfare etc.

Figure-16

Employment comprises all persons of working age who during a specified brief period, such as one week or one day, were in the following categories of paid employment (whether at work or with a job but not at work); or self-employment (whether at work or with an enterprise but not at work).

The working- age population is the population above the legal working age, but for statistical purposes it comprises all persons above a specified minimum age threshold for which an inquiry on economic activity is made.

The classification by economic activity refers to the main activity of the establishment in which a person worked during the reference period. The branch of economic activity of a person does not depend on the specific duties or functions of the person's job, but on the characteristics of the economic.

3.1 FORMAL SECTOR ECONOMY

The economy is categorized under the main three sectors as Primary, Secondary and Tertiary. If we talk about Dhing particularly the Primary sector comprises agriculture, animal husbandry and dairy as subsidiary industries. Manufacturing, household Industries and construction industry are considered in Secondary sector where as trade, tourism, hotels & restaurants, transport, storage & communication, banking, public administration, and informal sector are part of Tertiary sector.

Sector wise economic distribution

Primary Sector	Agriculture, Horticulture and Forestry, Sericulture & Fishing, Mining and Quarrying, Animal Husbandry and Dairy
Secondary Sector	Manufacturing, Household Industries, Construction.
Tertiary Sector	Trade, Tourism, Hotels & Restaurants, Transport, Storage & Communication, Banking, Public Administration and Informal sector

3.1.1 PRIMARY

3.1.1(i) Agriculture

In terms of natural resources endowment, the economy is purely agrarian. Agriculture is the backbone of its economy providing livelihood to about 78% of the total population. Rice is the staple food of the inhabitants and paddy is the principal crop of the town.Dhing town is surrounded by a fertile area of land which produces jute, rice and mustard seeds abundantly. In Dhing region basically Rabi season crops covering highest cropped area of the entire region than Kharif and Zaid crops. The production of jute is common to all household and sold to the Dhing weekly market at a cheap rate compared to the market prices in other towns. Other agriculture crops include paddy, wheat, varieties of vegetables, Dhunia etc. These all agricultural products were sold to the Dhing Wednesday weekly market.

Market Profile of Dhing Wednesday Weekly Market

AVERAGE DISPATCHES TO OUTSIDE MARKETS DURING THE SEASON (commodity-wise)	1. Jute	2400 tons
	2. Paddy	400 tons
	3. Wheat	80 tons
	4. Vegetable	1000 tons
	5. Dhania	20 tons
NO. OF PROCESSING UNITS INCLUDING JUTE BAILING PRESS IN THE AREA (Commodity-wise) 1. jute bailing press		3 nos.
COMMODITIES SOLD IN WHOLESALE WITH ANNUAL AVERAGE ARRIVAL IN TONE OF EACH COMMODITY	1. Jute	2400 tons
	2. Paddy	500 tons
	3. Wheat	100 tons
	4. Vegetable	1200 tons
	5. Dhania	30 tons
NAME OF THE FEEDER MARKETS WITH DISTANCE	1. Moirabari 2. Doomdomia 3. Bechamari 4. Kodomoni 5. Dhupoguri	10 K.M. 8 K.M. 10 K.M 6 K.M 5 K.M
NAME OF THE MARKETS TO WHICH THE PRODUCE IS SENT	Tinsukia, Jorhat, Lanka, Hojai, Guwahati, Nagaon	

3.1.1 (ii) Fishing

Fish is an integral part of the diet of the people of Assam as it gets a lot of rainfall. The local "Rohu" variety is in much higher demand than the other imported fish. Every small and big river, large areas of water bodies, swamps and Beel surrounding the town like Tolibar Beel, Salkata Beel, Raumari Beel, Lateri Beel etc. are having a unique potential for development of inland fisheries. There are a few unemployed youths but many of them are opting for fisheries as a livelihood option. There has also been a lot of development in aquaculture technologies.

Ornamental fishes form an important commercial component of aquaculture providing for aesthetic requirement and upkeep of the environment. Ornamental fishes mean attractive colourful fishes of various characteristics. These fishes are kept as pets in confined spaces like aquarium or a garden pool for fun and fancy but this living jewels need not always have bright colours as sometimes their peculiar characteristics such as body colour morphology, mode of taking food etc. may also add to their attractiveness. Ornamental fishes are usually kept in glass aquarium and hence popularly known as aquarium fishes.

3.1.1 (iii) Animal Husbandry and Dairy

The climatic condition of the district is suitable for poultry farming. Most of the poultry birds are reared in small units. However, the farmers have to depend on other districts/states for supply of chicks. The people in rural surrounding Dhing town have long tradition of maintaining cows & buffaloes for supply of milk and milk products. The production of milk per local animal is 1.5 litre/day. The low productivity of the dairy animals is apparently due to poor genetic character of the local cows. Considering the demand & supply, there is ample scope for development of this activity, particularly in rural areas adjacent to urban and semi-urban areas. Cattles, Buffaloes, Sheep, Goats, Pigs, Fowls and Ducks are the livestock and poultry.

3.1.2 SECONDARY (i) Manufacturing

There is good scope for agro-based industries specially jute industry in Dhing. There is abundance production of jute in Dhing region. But there are identified weaknesses that includes - power shortage, seasonal floods, shortage of industrial labour, lack of practical entrepreneurial development/motivation, lack of practical exposure. Katimari Weaving Project and Sack Craft paper project at Dhing are the main Industrial projects taken up in Cooperative and State sector.

The Industrial Estate is located on the southern bank of Brahmaputra River in North –West part of the town. It is within the Dhing urban area connected from district head quarter of Nagaon District at a distance of 26.00 Km, via Nagaon-Dhing- Bhuragaon State High Way. It is also connected with Guwahati by a broad gauge railway is an ideal location for setting up of agro-base industry.

3.1.3 TERTIARY

(i) Trade: - Dhing town is the principal centre of wholesale business in the entire Dhing area. Nagaon is the main trade centre in the district wherefrom many of the commodities are imported to Dhing. The wholesale purchase of some items such as sugar and pulses is done in the production centre located outside the state. The Dhing Market Committee was organized in 1965 in area to carry on the trade and commercial activities.

(ii) Tourism:-The Batadrava Than and Laokhowa Wildlife Sanctuary is also an important tourist destination. Bordowa, the sacred birth place of Mahapurush Srimanta Sankardeva, the Vaishnavite Guru for the people of Assam and architect of Assamese culture, is the most preferred place of visit for the spiritual people. The place has a small museum and two Satras or monasteries. An ambitious project to develop Bordowa as a spiritual & cultural centre has recently been started which will eventually attract more tourists.The Laokhowa Wildlife Sanctuary is also an important tourist destination as it is a home to one-horned rhino, wild boar, wild buffaloes etc.

(iii) Transport and Communication: - At present Dhing is well connected with the other parts of the district and state by road and rail. The State Transport buses as well as private buses ply regularly in the roads of the town carrying passengers to and from all important places with state and district headquarters. There is also ferry service connecting Dhing and singri.

(iv) Administration:-Dhing Municipal Board was formed in1972. There are 10 wards of the Dhing municipal Board. The chairman is the head of the administration. The Dhing Municipal Board has adopted various schemes for the improvement of road, streetlight, drainage, Parks etc. Moreover, Dhing region is controlled under Dhing Revenue Circle.

3.2 INFORMAL SECTOR EMPLOYMENT:

Mainly the roads, footpaths are encroached by the vendors in the Dhing Town. But there are markets and small bazaar which includes Dhing Daily Bazar, Dhing weekly markets, Fish Market, cattle market to name a few. These markets are on daily and weekly basis. Its includes food stalls, grocery, Fruits stalls, vegetables, meat vendors, Pan dukan, cosmetics etc. Moreover on the footpath by vendors, which acutely rise the traffic congestion between include intersection Dhing-Tuk-Tuki Road, Dhing Main bazar road, Dhing Rail crossing Area have this illegal vending and parking on both sides of the road and the resultant traffic need to resolve.

Daily Market *Figure-17*

cloth stores *Figure-18*

Weekly Market *Figure-19*

Fish Market *Figure-20*

Cattle Market *Figure-21*

(Informal Sector Economy at Dhing)

3.3 OCCUPATIONAL PATTERN:

In census survey, worker is defined as person who does business, job, service, and cultivator and labour activity. The cap town of an urban area to provide variety of jobs, absorb its working population in various sectors of economy is an indicator of the economic viability of the urban area. The participation rate also gives us an idea of the share of gainfully employed persons against the dependent and non- working population. Generally the participation rate in the urban area is high compared to the rural area.

As per census 2011, the workers are classified into four categories agricultural cultivators, agricultural labourers, household industrial workers and other workers. In Dhing M.B area, the distribution of economic base into type of sector namely primary sector, secondary sector & tertiary sector are imperative to provide a guideline for the development of entire planning area and creation of potential centres of development.

Table:-20 Occupational Pattern of Dhing Municipal Board

Gender	Main workers	Cultivators	Agriculture labourer	Household industries	Other Workers	Marginal workers	Non-Working
Male	4759	858	367	206	3986	658	4529
Female	673	18	23	46	748	162	8454
Total	5432	876	390	252	4734	820	12,983

Source-Census of India

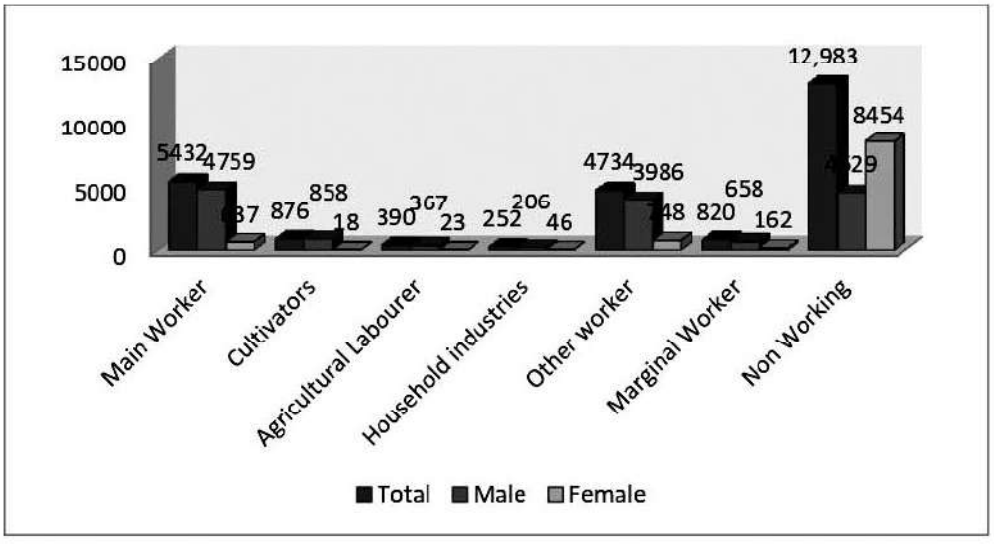


Figure-22

It is evident from the above figure that engagement in Non-working sector is higher compare to working sector and another category in 2011. This can be attributed to the very less opportunities for male and special female residents in municipal area which ultimately leads to higher amount of unemployment. Less number of cultivators, agricultural labourer and household industry works indicates the low agricultural and industrial sectors in urban area. The trend of the exorbitant increase in the employment in tertiary sector is indicative of the engagement of workers mainly in the service sector. There is need to balance this transformation into tertiary sector as well as primary sector for balanced economic development.

3.4 WORKFORCE DISTRIBUTION

Workforce population distribution according to sectors is as mentioned below:-

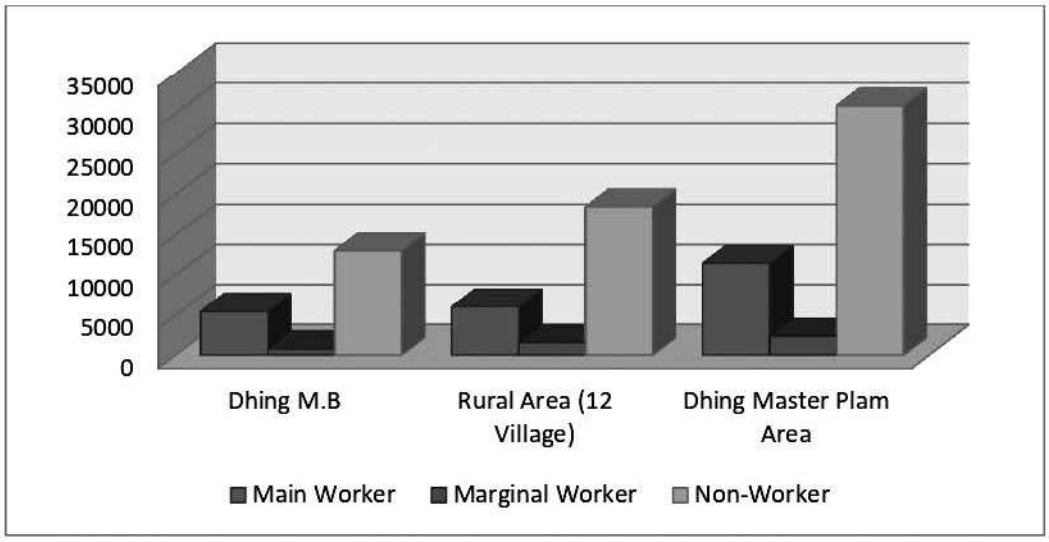
Workforce distribution by type of workers:-

Table:-21

Name of Area	Population, 2011	Total worker	Main worker	%	Marginal Worker	%	Non-Worker	%
Dhing M.B	19,235	6,252	5,432	28.24	820	4.26	12,983	67.50
Rural Area (12 Villages)	27,818	7,584	6,002	21.57	1582	5.69	18,469	66.39
Total	47, 053	13836	11,434	24.30	2402	5.10	30939	65.75

(Source-Census of India)

The details of the share of main, marginal, and non-working population of the Dhing master Plan area is furnished above. This table reveals that less than one third 24.30 % of the total population is main workers, very merge 5.10 % falls under marginal workers and nearly 65.75 % of population is non-workers in Dhing Master Plan Area. The Higher share of non-working population indicates that lack of employment opportunities/infrastructure is prevailing in the system. The Highest percentage of main workers to the total population is in Dhing Municipal Area while the lowest is in rural area. These phenomenon highlights that there is a shift from rural to urban migration i.e urban migration were observed in the system during the year 2011.



(Distribution of Workforce in Dhing Planning Area) ***Figure-23***

Workforce distribution by sectors of economy:-

Table:-22

Particulars	Main Workers	Primary Sector		Secondary sector	Tertiary Sector	%		
		Cultivators	Agricultural Labourer	Household Industry Workers	Others workers	Primary sector	Secondary Sector	Tertiary Sector
Dhing M.B	5432	876	390	252	4734	23.30	4.63	87.15
Rural Area (12 Villages)	6002	3039	1253	265	2033	71.50	4.41	33.87
Dhing Master Plan	11434	3915	1593	517	6767	48.17	4.52	59.18

(Source-Census of India)

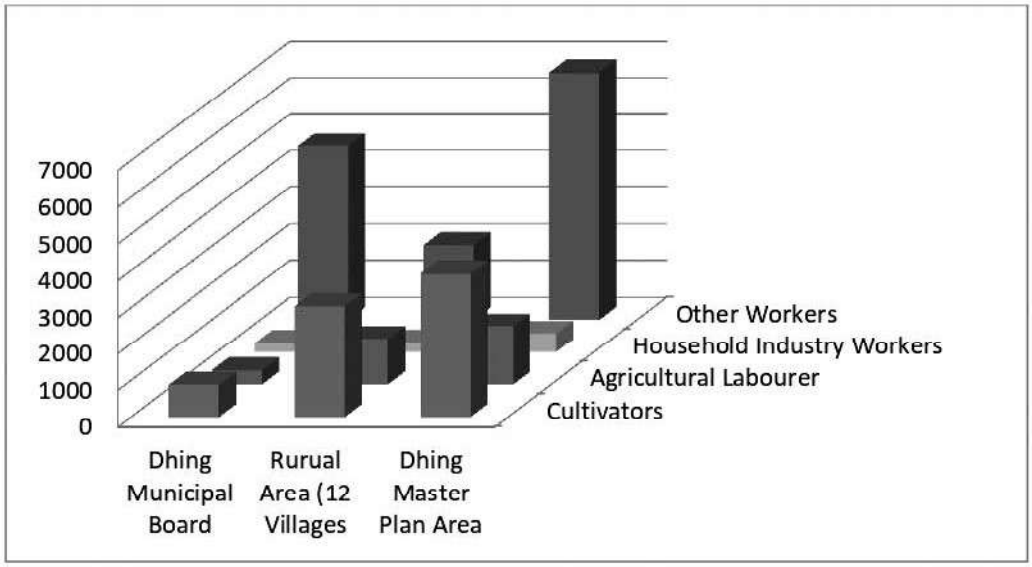


Figure-24

(Distribution of workers by sectors in different region)

The details of workforce distribution by sectors of economy are described in the above table reveals that out of the total working population of Dhing Planning Area, 48.17 % work in the primary sector, 4.52 in the secondary sector and almost 59.18 in tertiary sector. This composition clearly indicates that there is a higher dependency of working population on tertiary sector, followed by primary sector. However, in rural areas, dependency on primary sector slightly less than tertiary sector. Dhing Municipal area is mainly dependent on tertiary sector as major commercial and activities are concentrated in and around the all wards. As there is very less processing industrial establishments such as those that take the raw materials produced by the primary sector and process them into manufactured goods and products, the dependency on secondary sector is very less.

Table:-23 Workforce Participation Rate of Dhing Master Plan Area, 2045

Year	Dhing Municipal Area			Dhing Master Plan Area excluding the Municipal Area			Total Master Plan Area		
	Total Population	Total Workers	Work Participation Rate	Total Population	Total Workers	Work Participation Rate	Total Population	Total Workers	Work Participation Rate
1991	11,474	2767	24.11%	18258	2345	12.84%	29,730	5112	17.19%
2001	17,844	5604	31.40%	19562	4782	24.44%	37,406	10,386	27.50%
2011	19,235	6252	32.50 %	27,818	13836	49.73%	47,053	20,088	42.70%

Source-Census of India & T&C.P, Nagaon, Compilation

In 2011, the work-participation rate is 42.70% in Dhing Master Plan Area compared to 27.50 % in 2001. More job opportunities to be created by improving of the overall economy and the consequent emergence of more and newer demands for goods and services.

***

CHAPTER 4
HOUSING AND SHELTER

The word "Housing" means dwelling units in terms of quality and quantity alone. Housing or quality of life is more dependent on some elements of housing areas such as disposition of various working areas, layouts development of land, provision of roads, water supply system, sewerage, drainage and provision of basic amenities like shops, schools, parks and play grounds etc. The urban form and character emerges from the quality of housing areas and inter relationship of housing areas with work centre and other non- residential areas.

The urban housing is mainly restricted to within the Municipal boundaries. The residential areas outside the municipal areas are rural housing. Normally the rate of housing spread of town should range between 6-7 hectare per 1000 persons and the rate of housing spread within The Master Plan Area is around 22 Hectare per 1000 persons.

Table 24: Ward wise population distribution and Nos. of households of Dhing Municipal Area

Ward No.	Population as per 2011	No. of household	Housing size
1	2018	617	3.3
2	749	205	3.7
3	935	317	2.9
4	3964	606	6.5
5	1989	458	4.3
6	2292	612	3.8
7	1268	329	3.9
8	1380	329	4.2
9	1399	336	4.2
10	3241	574	5.7
Total	19235	4179	4.6

(Source-Census of India & T.C.P Compilation)

Table 25: Village wise population distribution and occupied residential houses of Dhing M.P. Area

Sl. No.	Dhing MB Area	Population	No. of Household	Housing size
1	Dhing Municipal Board	19,235	4,179	4.7
	Villages			
1	Auni Ati Satra	1150	224	5.1
2	Magurmari	914	161	5.7
3	Barbheti	3092	612	5.05
4	Saharia Gaon	1546	275	5.6
5	Auni-Ati Kheraj	582	129	4.5
6	Dhakaya Basti	3252	666	4.9
7	Dhupaguri Kachari Gaon	4479	857	5.22
8	Lakhar Ghat	4997	1006	5.0
9	Athgaon chapori	427	87	4.9
10	Sonari Gaon	3183	645	5.0
11	Bilatia Gaon	3115	579	5.4
12	Niz Dhing	427	221	1.9
	RURAL	27,818	5,462	5.0
	RURAL + URBAN	47,053	9,641	4.9

(Source-Census of India & T&C.P, Compilation)

4.1 HOUSING CONDITION:

Housing is a major element of people's material living standards. It is essential to meet basic needs, such as for shelter from weather conditions, and to offer a sense of personal security, privacy and personal space. Good housing conditions are also essential for people's health and affect childhood development.

Housing condition includes the study of housing base on type of structure i.e., permanent/ semi- permanent, physical infrastructure, mass space relationship, condition of the material use for walls and floors etc. It is important to be studied because it indicates the efficiency and sustainability of the housing stocks, whether the houses are livable or not. Based on the above said parameters, the condition of houses has been segregated and the analysis is done as good, livable and dilapidated houses of Dhing Municipal Area comparing with Nagaon District.

Table 26: Housing condition

Residence (%)				
Area	Total	Good	Livable	Dilapidated
Assam	62,72,151	33%	56%	11%
Nagaon District	5,53,106	30%	57%	13%
Dhing Municipal Board	4179	37.2	52.1	10.3

(Source: Census of India, 2011 and T&CP, Nagaon Compilation)

4.2 CONSTRUCTION MATERIAL OF HOUSE:

The survey carried out by Town and Country Planning, Nagaon in 2020 21 and as per Census of India, 2011, it is found that the overall housing condition in the Dhing Master Plan area is quite satisfactory. Though the percentage of R.C.C structure is less in the planning area, the semi-pucca structure occupies more than 70% of the total houses. The following table shows the condition of existing housing stocks of Dhing M.B Area.

Table 27: Materials used for roof

Area Name	Total Number of HHs	Grass/ Thatch / Wood/ Mud	Plastic c Polythane	Handmade Tiles	Machine made Tiles	Burnt Brick	Stone / Slate	G.I./ Metal/ Asbestos / sheets	Con create	Any other Material l
State	62,72,151	18.60%	2.10%	0.70%	0.3%	0.1%	0.80 %	74.20%	2.90%	0.20%
District	5,60,857	26%	3%	0.00%	0.0%	0.0%	1.00 %	69%	1%	0.00%
DMB	4,179	6.8%	0.8%	0.9%	0%	0.1%	0.6%	89.1%	1.6%	0%

Source: *Census of India, 2011*

Table 28: Materials used for walls

Area Name	Grass/ Thatch/ Bamboo o etc.	Plastic/ Polythene	Mud/ Unburnt Brick	Wood	Stone not packed d with mortar	Stone packed d with mortar r	G.I./Metal / Asbestos sheets	Burnt Brick	Concrete	Any other Material l
State	66.4%	0.60%	3.60%	1.60 %	0.70%	1.40%	1.10%	21.2%	2.90%	0.50%
District	67%	0%	4%	2%	1%	2%	0%	19%	3%	1%
DMB	47.4%	0.2%	5.3%	4%	0.8%	5.1%	1%	24.2%	11.8%	0.3%

Source: *Census of India, 2011*

Table 29: Materials used for floor

Area Name	Mud	Wood/ Bamboo	Burnt Brick	Stone	Cement	Mosaic/Floo r Tiles	Any other
State	78.60	2.10	1.20	0.40	16.60	1.00	0.10
District	83%	0%	1%	0%	15%	0%	0%
DMB	59.1%	0.6%	1.8%	0.1%	37.3%	1.2%	0.1%

Source: *Census of India, 2011*

Availability of Latrine and Bathroom:

Figure-25

As per 2011 Census about 83.9% of households have sanitary latrine and Bathroom and 46 % of the households have other type of latrine in the Dhing Master Plan Area.

Pradhan Mantri Awas Yojana (Urban)

Pradhan Mantri Awas Yojana: Urban (PMAY-U), a flagship Mission of Government of India being implemented by Ministry of Housing and Urban Affairs (MoHUA), was launched on 25th June 2015. The Mission addresses urban housing shortage among the EWS/LIG and MIG categories including the slum dwellers by ensuring a pucca house to all eligible urban households by the year 2022, when Nation completes 75 years of its Independence. PMAY (U) adopts a demand driven approach wherein the Housing shortage is decided based on demand assessment by States/Union Territories. State Level Nodal Agencies (SLNAs), Urban Local Bodies (ULBs)/ Implementing Agencies (IAs), Central Nodal Agencies (CNAs) and Primary Lending Institutions (PLIs) are main stakeholders who play an important role in implementation and success of PMAY (U).

PMAY (U) Progress at Dhing Municipal Board

The Dhing Municipal Board has approved for 1114 (BLC) houses under the Pradhan Mantri Awaas Yojna, which mainly covers the poor family. So far 967 Nos, of Houses has been completed (93.4 % progress)

Figure-26

"Griha Pravesh"and "Griha Adharsila program"

Under the scheme of PMAY (U) of Dhing Municipal Board at Dhing Town

4.3 HOUSING STOCK AND FUTURE REQUIREMENT:

The housing requirement is more in the urban area than that in the rural areas. Almost all people in rural area have got their own house. The total housing stock and future requirement of houses up to 2045 in the Dhing Master Plan Area were calculated based on the town/ town level data on the houseless population and pavement dwellers, the houseless population is derived from the data published as part of Census of India, 2011. The total requirement of dwelling unit in the planning area as per the planning norms is as follows:-

Housing Requirement for future Population of Town Area till 2045:

55607-19235 =36372

Assuming family size of 5 persons, new houses will be required 36372/5 = **7274** Nos.

Housing Requirement for future Population of Rural Area till 2045:

57683-27818=29865

Assuming family size of 5 persons, new houses will be required 29865/5=**5973** Nos.

Housing Requirement for future Population of Dhing Master Plan Area till 2045

113291-47053 =66238 Nos.

Assuming family size of 5 persons, new houses will be required 66238/5 = **13247**Nos.

Table 30: Total housing stock and future requirement of houses:

Sl. No.	Area	Total no. of housing stock as per 2011	Housing requirement up to 2045
1	Dhing M.B	4179	7274
2	Rural Area	5462	5973
	Total	**9641**	**13247**

(Source-Census of India, T&C.P compilation)

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CHAPTER 5
TRANSPORTATION

Transportation plays a major role in the daily life of human beings. It is necessary for things to be moved around and as transportation systems have developed over time, the speed and efficiency of these systems have improved drastically.

The importance of transportation is showcased in how individuals, businesses, and governments rely on it to access resources. A society cannot function optimally if it does not have measures in place to facilitate transport. From movement to work to travel around the world, being able to arrive at various places or deliver different items on time is vital for overall productivity and sustainable development.

In consideration of healthy growth, economic prosperity and improved living standards of a town or a town, a high- quality transportation network is essential. In addition, transportation and land use are to be integrated to achieve reduction in trip length, increase in public transports usage etc.

5.1 TRANSPORTATION NETWORK:

Regional Connectivity of Dhing:

Dhing is well connected to Assam major cities like Nagaon, Guwahati, Morigaon through PWD roads to State highways via National highways which further connects to rest part of Assam in particular and India as a whole.

Interstate Connectivity from Dhing:

Dhing is connected to major cities of Assam and other state of India by road and Rail. Table manifests the time taken (in hrs) and distance (in km) from Dhing to important cities of Assam and other state by different modes of transportation.

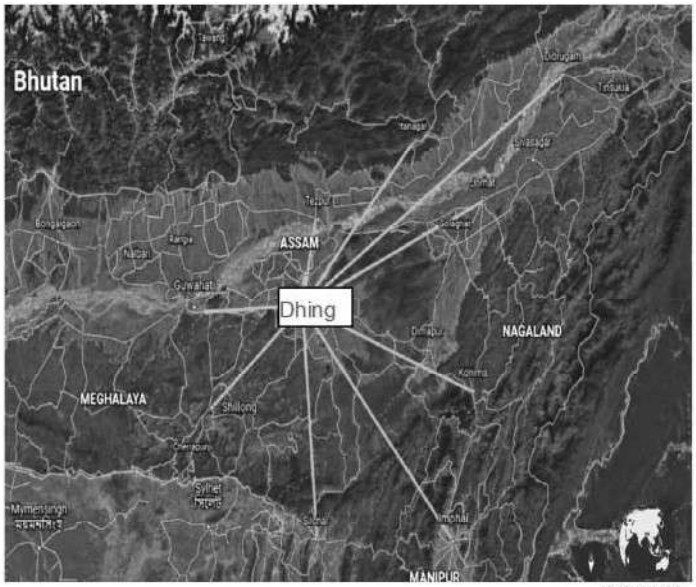


Figure-27

Dhing Town inter-state connectivity with North-Eastern states of India

Nagaon is the nearest major town and district headquarters, from Dhing which covers minimum distance i.e. 25 km. From state capital Guwahati to Dhing it covers a distance of 145 km. Other, important cities of different states capital like Kohima, Imphal, Shillong, Silchar, Dibrugarh, Jorhat, Tezpur, Itanagar etc, which takes approx. minimum 12 hrs by road. Imphal is far away from Dhing that take 9 hrs 41 mins to reach by road journey, however other modes of transportation is not available in this case.

Table 31: Connectivity from Dhing to other state regions

Connectivity from Dhing	Distance (KM)	Time (hrs.)	
		By Road	By Rail
Nagaon	25	42 mins	1 hrs
Guwahati	112	2 hrs 57 mins	5 hrs
Kohima	262	6 hrs 48 mins	
Imphal	397	10 hrs 49 min	
Shillong	192	4 hrs 26 min	
Silchar	324	10hrs 24 min	14 hrs
Dibrugarh	346	9 hrs21 min	14 hrs
Jorhat	208	5hrs24 min	9 hrs
Tezpur	75	2 hrs 17min	
Itanagar	225	6 hrs 7 min	

5.2 NETWORK OF ROAD:

Roads are part of urban and rural infrastructure. These roads are required for both intra-town and inter-town movement and render much higher level of service compared to Regional Roads, State Highways and National Highways. Quality of life is depends on efficient and effective road system, of course, with the support of other infrastructural services such as water supply, sewerage, drainage, electric town, telephones etc. in order to perform social, economic & cultural activities.' Urban transportation network is required to facilitate movement of people and goods and therefore efficient network is necessary for their efficient movement.

Importance of Urban roads is increasing on account of the fact that urban areas are increasing in their size and number.

INTERTOWN CONNECTIVITY (From Dhing):

Dhing has the inter-town connectivity by road as well as by rail. The table below shows to various modes of transportation and its connectivity with the nearest cities like Morigaon, Moirabari, Borduwa. The minimum connecting distance is 24.5 km from Gorajan, Laokhuwa and Tezpur maximum is 86.4 km is well connected by roads. The district headquarter Nagaon town is connected with Dhing via Borduwa,the State road connecting point distance of 25 km, and Dhing to Nagaon town via Jajori by the intertown road at a distance of 35 kms. Dhing town also well connected with Morigaon town.

Table-32 Road connectivity with Distance

Sl. No.	Road Type	Connectivity	Distance
1	State High way-47	Nagaon to Dhing via Borduwa	25 Km
2	State High way-47	Borduwa to Dhing	8.7 km
3	State High way-15	Dhing to Morigaon	24.5 km
4	State High way-15	Dhing Town to Morigaon via Moirabari	12.5 km
5	State high way-47	Dhing to Moirabari via Lahorighat	28.8 km
6	PWD Road	Bebejia to Tuk Tuki via Jajori	18 km

5.3 OVERVIEW OF CRITICAL ROADS:

The identification of critical road links is greatly important to the management and control of the transportation system. Existing works fail to fully consider the influence of the distribution of traffic flow and its dynamic characteristics on critical road link identification.

The study of critical roads mainly depends upon several factors like traffic conditions, road geometry characteristics, environmental factors etc. Field traffic surveys were carried out to capture the classified volume count for major arterial, sub-arterial and collector roads spread across Dhing Town. Based on the field survey data and traffic volume survey conducted by the T&CP, Nagaon at some major points were ascertained during peak hours. The critical roads in Dhing town as well as the Dhing Master Plan Area is identified the State Highway -47 Dhing to Nagaon via Borduwa, State High way -47 Dhing-Laharighat-Bhuragaon, Dhing to Bebejia via Tuk Tuki (PWD road) and Dhing Town via Salahguri to Doomdomia Balisatra Rd. which are urgently need to decongest and future plan for widening and improvement to ensure free flow of traffic movement in Dhing Master Plan Area.

5.4 ANALYSIS OF TRAFFIC NODES:

Table:-33

The major traffic nodes in Dhing town are identified which are detailed as below:-

Area	Location of point	Description
Dhing Town Area	(i) Dhing Road Tiniali	This is a commercial place consist of some shops, daily vegetable market and link with some educational centers through higher secondary road & entry to Dhing FRU hospital, Dhing College , Offices, fire station etc.
	(ii) Dhing Bazar	It is also a business center consist of variety of major shops, Market area, Pubic gathering Place entry Gramin Vikash Bank etc. also way to Bebejia through Tuk Tuki.
	(iii) Dhing Chariali	It is a fully busiest daily Market area with entry to Dhing Circle Office, Nagaon-Dhing -Bhuragaon Road, Dhing Municipality Board, Dhing Police Station, and way to also way to Morigaon through Moirabari.

Traffic Congestion Point, Dhing Town *Figure-28*

5.5 BUS TERMINUS:

There is no any organized ISBT in Dhing Town. Public and Private Bus stands are most temporarily located at some busy road sides of Dhing town which causes the traffic congestion and traffic hindrance. The bus stands located at different places of the town and their characteristics are as given below:-

Table:-34

Terminal Centre	**Location**	**Observation**
A. Inter-Town	**Bus Station**	
Passenger	i) Dhing - Bazar Bus Stand	Located near Dhing Bazar area. Parking space is not sufficient. Waiting shed, toilet facilities should be extended. Passenger's guest house facilities should be provided.
	ii) Dhing Tuk Tukio Bus Stand	Very congested. Parking space is very narrow. Waiting shed and toilet facilities are nil. Immediately this bus station should be shifted.
	iii) Dhing – Dumdumia Bus stand	Located at Dhing Main Bazar area. Campus of the Bus station is very narrow, so all the necessary facilities should be improved providing modern technology through proper planning. Waiting shed and toilet facilities are nil. Road side parking.
	iv) Dhing- Moirabari – Lahorighat Bus stand	Very congested, Unplanned, Always overcrowded. No waiting shed. Toilet facilities are very negligible. Road side parking.
	v) Dhing – ASTC Office	Very congested. Unplanned and always overcrowded. No waiting shed and no toilet facilities.

5.6 RAILWAY:

There are 2 trains' halts or run through the Dhing Bazar Railway station. Some of the major trains passing through DBZ are - (MAIRABARI - GUWAHATI Passenger, GUWAHATI - MAIRABARI Passenger, etc.).) The station code for Dhing Bazar Railway Station is 'DBZ'. Being the largest railway network in the world, Indian Railways announced station code names to all train routes giving railways its language) Indian Railway has a total of 17 railway zone. Dhing Bazar Railway station falls under the North Frontier Railway zone.

i) There is a total of 1 well-built platform.

ii) Dhing Bazar Railway station has many trains scheduled in a day! The first train that arrives at Dhing Bazar is at MAIRABARI - GUWAHATI Passenger at 04:14 hours. The last train to depart Dhing Bazar station is the GUWAHATI - MAIRABARI Passenger at 22:42

Table:-35

RAILWAY STATIONS		
Passenger	i) Dhing Railway station	The existing platform should be upgraded and waiting shed should be extended. Guest house facilities should be established. Toilet and sanitation facilities are not sufficient to the need of the people. Booking and Reservation Counters should be opened. The platform is required to be upgraded providing all modern facilities.

5.7 TRAFFIC VOLUME SURVEY:

The traffic volume survey conducted by the T&CP, Nagaon only at some main points and it is restricted only to peak hour survey from 08:00 A.M to 10:00 A.M 11:00 A.M to 12:00 P.M, 12:00 P.M. to 01:00 P.M. identify better and efficient traffic operation plan. The following table shows the traffic volume of the main points within Dhing Master Plan.

1. MAIN BAZAR POLICE POINT:

Table:-36

Sl. No.	Vehicle	Number	Time
1	Bus	07	
2	Tempo	15	
3	Rickshaw	04	
4	Thela	07	
5	Bicycle	45	
6	Truck	06	
7	J.C.B	01	
8	Bike	74	11:00 A.M
9	Tractor	01	
10	Car	38	
11	E- Rickshaw	33	
12	Magic	13	
13	Tata Mobile	22	
14	Soil Truck	03	

2. DHING TOWN MARKET POINT:

Table:-37

Sl. No.	Vehicle	Number	Time
1	E- Rickshaw	23	
2	Tempo	16	
3	Rickshaw	07	
4	Thela	08	
5	Bicycle	41	
6	Truck	02	12:00 P.M
7	J.C.B	01	
8	Bike	67	
9	Car	34	
10	Magic	11	
11	Tata Mobile	26	

Source:-T&C.P survey

3. DHING CHARIALI POINT:

Table: 38

Sl. No.	Vehicle	Number	Time
1	E- Rickshaw	22	
2	Tempo	16	
3	Rickshaw	08	
4	Thela	09	
5	Bicycle	38	
6	Truck	06	
7	J.C.B	01	
8	Bike	70	01:00 P.M.
9	Car	25	
10	Magic	10	
11	Tata Mobile	14	
12	Soil Truck	05	
13	Tractor	02	
14	Dumper	04	
15	Bus	02	

4. DHING FRU HOSPITAL POINT:

Table:-39

Sl. No.	Vehicle	Number	Time
1	E- Rickshaw	24	
2	Tempo	18	
3	Rickshaw	08	
4	Thela	07	
5	Bicycle	17	
6	Truck	04	
7	J.C.B	01	
8	Bike	66	01:00 P.M.
9	Car	28	
10	Magic	12	
11	Tata Mobile	13	
12	Soil Truck	04	
13	Tractor	01	
14	Dumper	02	
15	Bus	02	

Source:-T&CP survey

5. DHING RAIL GATE POINT:

Table:-40

Sl. No.	Vehicle	Number	Time
1	E- Rickshaw	40	
2	Rickshaw	09	
3	Thela	03	
4	Bicycle	21	
5	Truck	04	
6	Bike	33	01:00 P.M.
7	Car	25	
8	Magic	04	
9	Tata Mobile	04	
10	Tractor	01	
11	Dumper	01	

Source:- T&C.P survey

5.8 PARKING:

Vehicle parking is a major problem in urban areas. With rapid growth of the urban area, the parking generation rate goes on increasing very quickly which creates major problems of parking in most of the urban areas. In the recent years, with the rapid development of economy and exorbitant increase in the motor-vehicles, parking problems in urban area have become increasingly prominent.

On strcct parking is found all ovcr Dhing Town, parking usually spills ovcr to other use areas like road carriageway and footpaths, open spaces. In turn they affect safety and environmental quality. Parking characteristics within the town vary by areas, by land use activities and by time period. In residential areas it is by time period.

At present there is no municipal identified parking area designated for public and private parking within Dhing town as well as Planning Area. As per parking survey conducted by the Town and Country Planning, Nagaon it is observed that on street parking is found all over Dhing town. On- Street parking is observed to be high on Dhing Bazar Road, both side of the Main-road of Dhing Town.

Figure-29

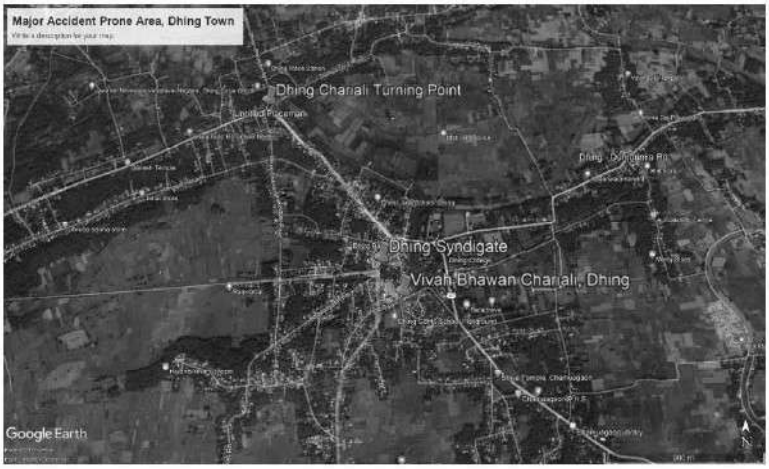
Proposed on-street parking sites of Dhing Town and Multilevel Car Parking Space

(1) Proposed Multi-level car parking space at Dhing Weekly Market
(2) On-street parking at junction point of Puja Bari Road & Dhing Tuk-Tuki Road
(3) On-street parking at junction point of Puja Bari & Dhing GB HS School Road
(4) On-street parking at near Dhing Circle office, Dhing Chariali
(5) On-street parking at Athgaon Road point connecting Dhing-Bhuragaon Road
(6) On-street parking at Tolibar Beel Road side

5.9 MAJOR ACCIDENT PRONE AREA:

As per records available from the Dhing Municipal Board, there are frequent accidents are being happened in Dhing Town due to non-traffic signal points and uncontrolled speed of the vehicles. Major accident prone areas of Dhing town are mentioned as below:

1. Dhing Syndi-gate
2. Bibah -Bhawan chariali
3. Dhing Chariali Turning point.



Accident Prone Area, Dhing *Figure-30*

5.10 TRANSPORTATION ISSUES AND REQUIREMENTS:

5.10.1 ILLEGAL VENDING ZONE:

- One of the major issues is of illegal vending on walking shoulders on the main streets.
- Due to illegal vending sometimes the actual accessible patch of road decrease to half lane only.
- If proper spaces are being allocated to street vendors in every zone the issue can be eliminated.
- Due to illegal possession of shoulders the pedestrian come down to road for their local trip and sometime proves unsafe on congested area.
- Narrow road network with restricted capacity, particularly due to the illegal vending, resulting in congestion and loss of productivity.
- The problematic areas include intersection near Thana Road, Dhing Rail crossing Area have this illegal vending's.

Illegal Vending Area, Dhing *Figure-31*

Therefore, to reduce traffic congesting in Dhing Town 3Nos. (three) of vending zone has been proposed at Ward No-4 near weekly market, Ward NO-3 near Block Elementary Education Office and Ward No-1 near Circle Office.

5.10.2 TRAFFIC CONGESTION:

- Traffic congestion is quite common in Dhing Town and it takes a lot of time to commute for the commuters.
- At many places geometry of the town is very less as they have not followed any norms and standards for the road pattern as well as for other related things like road cross sections and railway level crossing etc.
- Observed encroachments on the footpath by vendors, which acutely rise the traffic congestion between include intersection Dhing Thana Road, Dhing Main bazar road, Dhing Rail crossing Area have this illegal vending and parking on both sides of the road and the resultant traffic need to resolve.
- Many vehicles, due to lack of adequate parking facilities, were parked on the Dhing Town bazaar road, causing inconvenience to people who use the field for recreational purpose like walking and playing and people had to face inconvenience as that road leads to many importance place like Dhing Higher Secondary School, Police Thana.

5.11 ROAD ENCROACHMENTS:

- Many factors can be listed out for such happenings, but few observations are mentioned below, which are
- Unauthorized parking of vehicle on pavement only.
- Many spots with exposed electric poles on pavement sides which leads to make space dead and potential for parking wheels.
- The town suffers from parking problems due to encroachment by vendors on road and off-street parking. As a result, the road width decreases and there is no space remaining to pass the vehicles or to give space to other vehicles.
- There is no designated space for parking in whole town,
- There are encroachment issues in areas namely both sides Dhing Thana Road, Dhing Main bazaar road, Dhing Rail crossing road.
- Due to lack of space, it is difficult for vehicles to pass on.
- Also, Proper facilities are needed for loading, uplifting, and downloading.
- Encroachment on both sides of the road decreases the effective width which may cause road accidents and disturbs the smooth flow of traffic.

5.12 TRAFFIC SIGNAL POINTS:

There are no organized traffic signal points in Dhing town. Various junctions without traffic signals are there in the town area like- Dhing Tiniali, Bibah-Bhawan chariali point, Turning point Dhing chariali, etc. resulting in unnecessary traffic jams and more requirement of traffic brigade occurs.

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CHAPTER 6
INFRASTRUCTURE, PUBLIC UTILITIES & SERVICES

The development pressure on towns and cities is increasing with the rising urban population and growth of urban areas. The development of cities in itself is dependent upon the public infrastructure services. The creation of urban infrastructure is expensive and time consuming. Therefore it requires the Government to play a major role in making lumpy investments.

A country's economic and social development is directly dependent on a country's infrastructure. Many developed countries make a lot of progress because of the enormous growth of economic and social infrastructures. A good infrastructure makes the work process easier, resulting in a positive and high productivity.

Urban infrastructure development is the foundation of every town and remains the key to ensuring basic services like water, sanitation, drainage, energy, and transport. With proper and planned urban infrastructure development, residents can enjoy better living conditions & live healthier lifestyles while benefiting from enhanced environmental sustainability.

Social Infrastructure is a subset of the infrastructure sector and typically includes assets that accommodate social services like Health, Education, Housing, Civic and utilities, Transports etc.

6.1 SOCIAL INFRASTRUCTURE:

Social infrastructure plays and important role to provide quality of life to the residents of the town. The effectiveness of social infrastructure in achieving the objective of town development plan would depend upon its cap town to contribute to improvement in the quality of life, enhanced self-dependency and town's sustainability. The level of social infrastructure shall aim the creation of liveable town through reducing the sense of alienation among the residents with less dependence on other settlements for basic infrastructure.

Social infrastructure refers to the facilities and mechanisms that ensure education, health care, community development, and social security, recreational and social welfare. The development cannot be looked at in isolation without considering the basic needs of the people, and a significant level of investment is needed in this sector. Usually this development referred to as the commitment towards realizing the vision of the town.

6.2 EDUCATION

Education is an important factor influencing the quality of life of the people and future development of an area. It empowers them with skills and knowledge and helps them to better lead their life and access best of the employment opportunities available in the market. This is turn will impact the work force participation rate and economy of the area. There are many government and private schools, colleges in Dhing town. The existing scenario of Primary, Middle school and higher secondary school and Govt. and private Colleges in Dhing area is shown in the table given below:

Table 41: Educational Facilities available in Dhing Master Plan Area

Sl. No.	Category of Educational Institutions	Institutions in DMB Area	Institutions in Village Area	Enrollment	Teachers
1	Lower Primary Schools	7	31	4111	143
2	Middle School	5	13	2091	110
3	High School	7	5	1681	95
4	Higher Secondary School	1	1	1512	64
5	i) Dhing College	2	-	2156	72

(Source-Education deptt., Nagaon)

6.3 HEALTH:

The medical facilities in Dhing town are not sufficient to the needs of the demand of the peoples. Dhing F.R.U. 30 beds civil hospital including maternity section has been providing the medical facilities to the peoples of Dhing area. In addition to the Dhing F.R.U. there are 7(Seven) Health Sub Centre within area at Saharia, Salaguri, Sonarigaon, Borbheti, Niz-Dhing, Lahkhar Ghat, Auniati Satra. There is also a Private Nursing Home namely Awhak Hospital at Ward No. 10. Therefore Dhing F.R.U. Hospital is always over crowded with patient and needs its immediate expansion.

6.4 WATER SUPPLY:

In Dhing town, piped water is supplied to a section of the people by PHE Deptt. Dhing and rest of the population depend upon individual source of water like ponds, ring wells and tube wells. The underground water reserve of the town is in a satisfactory condition hence it is felt that there will not be shortage of water for distribution in the town. Besides this Brahmaputra River is passes near the town from which water can be trapped for distribution if required in future for the projected population.

Table 42: - Ground water by it source in Dhing Urban Area

Sl. No.	Source of Water	Household	Population	Percentage
1	Tape	311	1430	7.4
2	Well (Covered/Uncovered)	121	556	2.9
3	Hand Pump	3,506	16,127	84
4	Tube Well/Borale	183	841	4.4
5	Tank/Pond	Nil		Nil
6	River/Canal	Nil		Nil
7	Other source	58	281	1.5
	Total	4,179	19,235	100%

Source-Census of India

6.5 POLICE STATIONS:

The whole Dhing Master plan Area is controlled by Dhing police station which is located in the heart of the Dhing town.

6.6 TRADE AND COMMERCE:

The Commercial activities in Dhing Town have not been growing like other towns of Nagaon District. As per data available from the Dhing Municipal Board the total No. of retail shops in the Town Area is 710 units and 19 No. of wholesale units.

There are 2 (Two) daily markets in the town and 1 (One) is weekly market on Wednesday in the Dhing main bazar area. Following table depicts the commercial activities in Dhing Town.

Table 43: Data regarding Trade and Commerce within Dhing Municipal Board Area:

Sl. No.	Type of business Units	Nos. of business Units	
		Wholesale	Retail sale
1	Grocery	6	108
2	Cloth		91
3	Medicine	8	31
4	Cycle Repairing/seller		6
5	Hardware(cement dealer)		30
6	Electrical shop		15
7	Radio & T.V		4
8	Fruit shops		5
9	Wholesale potato/onion/garlic/dry chilly	2	
10	GYM center		1
11	Petrol/Diesel pump		1
12	Rice		9
13	YOGA center		1
14	Fertilizer		5
15	Optical shop		1
16	Meat shop		22
17	Timbers		3
18	Gift Item		2
19	Diary		1
20	Cotton shop		1
21	Book stall		8
22	Biscuit & Backery		7
23	ICE Factory		2
24	Tailor		21
25	Hotel		49
26	Gas Agency		2
27	Computer Service		8
28	Computer Training center		4
29	Sports Goods		1
30	PCO		1
31	Home Delivery Service		1
32	Generator current supply		1
33	Ayurveda Food supplements		1
34	Disposable Dish/Plate/Glass		4
35	Glass House		2
36	Patanjali Goods sales		1
37	Photo Studio & Photo state		8
38	Murgi dana/Fish food		1
39	Vegetable seller		9
40	Dry fish		6
41	Kamarsala		3

42	Furniture Product		24
43	Agricultural		7
44	Bank & Financial Service		5
45	Garage		19
46	Oil mill		1
47	Beauty Parlor		6
48	News Paper Agency		1
49	Wine shop		4
50	Khaaini Retail		3
51	Pan Tamul Gumti		9
52	Bag		1
54	Cycle Repairing/seller		6
55	Cool Drinks		2
56	Handicraft Industries		2
57	Handicraft Industries		2
58	Information Technology service		2
59	Cheera Methoi		2
60	Mobile service		17
61	Shoes & chappl		18
62	Pan wholesale	2	
63	Pottery		1
64	Welding		4
65	Corier service		3
66	Barbar shop		4
67	Drinking Water Agency		6
68	Vehicle sels/Servicing/washing center		2
69	Watch		1
70	Cinematography still& video photography		1
72	E- Commerce		1
73	Potato	1	
74	Tea leaves seller		1
75	Kerosene Hawker		1
76	Thread Retailer		2
77	Foods/ Beverages whole sale		2
78	Small industry		4
79	Vehicle show room		1
80	Kabari		1
81	Bar & Restaurant		1
82	Tax Consultancy		1
83	Agency Distributorship		1

(Source-Dhing M.B)

6.7 CREMATION /BURIAL GROUND:

There are 4 (Four) cremation grounds and 1 (One) burial grounds within Dhing Master Plan Area- which are shown in the table below:

Table 44:

Sl. No.	Location	Number of Cremation Ground	Number of Burial Ground
1	Ward No. 3	1	1
2	Ward No. 9	1	-
3	Ward No. 8	1	-
4	Chamuagaon	1	-

(Source: - Dhing Municipal Board)

The existing cremation and burial grounds should be developed with the basic facilities like roads, waiting shed, water supply, electricity and drainage etc.

6.8 FIRE STATION:

The entire Dhing Master Plan Area is covered by one fire station located at Ward No. 3 to take care of fire hazards. Therefore, Alternative solutions of use of smaller fire hydrants for very narrow roads, Market Area, Highly populated Area etc. for fire safety.

Stratcgics for Firc Hydrant Installation Point

 Hydrants must be located within three feet of the edge of a fire lane and cannot be located in areas where it may be visually or operationally obstructed (behind fences, walls, in bushes, behind parking spaces, etc.). Clearance shall be provided to a distance no less than three feet from the perimeter of the hydrant.

The hydrant outlets must face the fire lane. In areas where the outlets cannot face the fire lane (e.g., the hydrant is located on a landscape peninsula or island in a parking lot; the hydrant has three outlets, etc.), the 4" outlet(s) shall take precedence

The hydrant shall be located at least 40-feet from the building it serves. Where it is impractical to locate the hydrant 40-feet from adjacent structures, additional hydrants may be provided, or the hydrant may be located closer if nearby walls do not contain openings and the hydrant is not in a location where it may be rendered inoperable due to damage from collapsed walls, debris, or excessive heat.

 The concerned agencies shall take approval from Fire Department for fire fighting measures while laying the services for an area.

Proposals for Fire Hydrant in Dhing Master Plan Area

A **fire hydrant**, **fireplug**, or **firecock** (archaic) is a connection point by which fire fighters can tap into a water supply. It is a component of active fire protection. Underground fire hydrants have been used in Europe and Asia since at least the 18th century. Above-ground pillar-type hydrants are a 19th-century invention.

Fire Hydrant Location point: - For fire safety measures in DMPA 4 (Four) Fire Hydrant installation point has been proposed at Dhing weekly market, Near Dhing Circle Office, Near Dhing College, Athgaon ward No-IX

6.9 POST OFFICE:

As per record available it is seen that there is only 1 (One) post office within Dhing Master Plan area, which is not sufficient to meet the need of the demand of the peoples of Master plan area.

6.10 BANKS/FINANCIAL INSTITUTIONS:

The entire planning area is served by 6 nos. of Banks and these are all located at Dhing Master Plan Area. The banks located within the planning area are shown in the table below:

Table 45: Banks in Dhing Municipal Area:

Sl. No.	Name of Banks	No. of banks
1	United bank of India	1
2	State bank of India	1
3	LIC, Dhing	1
4	Bandhan bank	1
5	Assam Gramin Vikash Bank	1
6	Co. apex. bank	1

(Source-Dhing Municipal Board)

6.11 RECREATIONAL FACILITIES:

The Recreational facilities in Dhing Master Plan area are not sufficient which is shown in the following table depicts the available of recreational facilities in the Dhing Municipal Area as well as the Planning Area.

Table 46: Recreational facilities within Dhing Master Plan Area:

Sl.No.	Recreational facilities	Nos. along with Name and Location
1	Parks	Keshabanda Borkakoti sishu Uddyan
2	Stadium	Dhing Town stadium
3	Library	1
4	Public Auditorium	1
5	Cremation Ground	5
6	Burial Ground	1

(Source: Dhing Municipality Board)

6.12 DRAINAGE SYSTEM:

With the rapid urbanization as well as the expansion of the area of Dhing town, the existing drainage facilities are not sufficient to the needs of the demand of the people. Most of the new residential areas have grown without having drainage facilities. The existing drains both side of the road do not have proper slopes or not properly linked up with the main drains and the alignments of the natural drains are also not properly defined, resulting in water logging at different areas of the town, mainly during the heavy rainy season (June to October) most of the busy roads in the residential area of Dhing town is inundate with the stagnation of rain water.

As the Brahmaputra River passes near the Dhing town, a major part of the storm water generated in the town flowed out to the Brahmaputra River. During the rainy season when the Brahmaputra River is increase in volume than it is not in a position to discharge the rain water and consequently all the low-lying areas within the town causing flood. As per record available it is found that the total drain length of Dhing MB area is 6.51 km. out of which RCC drain is 1.9 km and remaining 4.61 km is covering by kacha drain.

Table 47: Storm water Drain

	Total Length	Pucca Drain	Kutcha Drain
Storm water Drain	6.51	1.9	4.61

(Source: Dhing Municipal Board)

6.13 SEWERAGE SYSTEM:

As at present, Dhing does not have an integrated planned sewerage management system, and majority houses in the city have septic tanks, of which many are not maintained well; hence, overflowing and dysfunctional. In fact, many septic tanks are now non-functional because of the high water table, and as a result, much of the untreated wastewater directly flows into the storm water drains or into the natural drainage channels. It is a high time that the authority plan and implement proper public wastewater collection and disposal system to ensure that sewage or excreta and sludge discharged from communities is properly collected, transported, treated to the required degree and finally disposed of without causing any health or environmental problems.

As per the survey done, present wastewater generation by Dhing town is approximately 12235.4 KLD but there is no STP provision done for sewerage generated by town.

Table:-48

SL.No.	Area	Population	Water Consumption MLD	Sewerage Generation MLD	Nos. of STP proposed	Existing Treatment Capacity	Gaps in MLD
1	Dhing Master Plan Area	1,13,291(P)	15294.28	12235.4	01	Nil	12235.5

(Source-T&C.P & DMB compilation)

Estimation of Wastewater Generation

The total water requirement for Dhing Master Plan Area is 19.72 MLD (by the year 2045). As per CHPEEO guideline, 80% of total water demand is considered as the sewerage flow; therefore, around 15.78 MLD water is expected to go in sewerage lines. As time passes, the area is expected to grow and along with high water demand, there will be larger wastewater discharge; hence, the project area required systematic sewerage system so the wastewater will not be discharged in the natural drains, which will help in reducing the flood problem.

There should be underground sewerage connection to each household and from where the discharged wastewater should go to sewerage treatment plant before discharging it into the natural drains. While planning for the proposed sewerage system, consideration should be given to the natural drainage pattern. The sewerage system should be planned in such a way that there will be minimum pumping involved in collection and conveyance of sewage. New Sewerage Treatment Plant (STP) sites should be identified depending on considerations such as the quantum of environmentally suitable land, and availability of government land, capital and O&M cost of different options. While the underground sewerage is been planned and implement, the authority needs to make sure that each household in the region has a septic tank installed and is being managed and is fully functioned. Water from commercial and industrial activities wastewater is being treated before discharging in the river.

Issues:

Absence of sewerage system: there is absolute absence of sewerage system in Dhing planning area resulting in discharge of un-treated waste water in drains and Tolibar Beel.

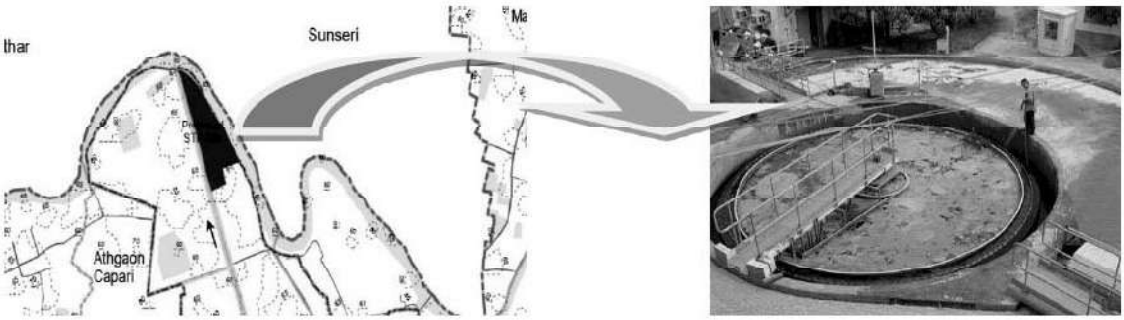
Mixing of storm water and sewage: In absence of sewerage and improper drainage system, in many parts of planning area, there is discharge of sewage into storm water drains and other water bodies.

Maintenance of Septic Tank: As per the present practice, the septic tanks are the only mode of disposal of sewage in Dhing planning area, which are not frequently cleaned by the Dhing Municipal Board.

In a modern society, proper management of wastewater is a necessity, not an option. A wide range of communicable diseases can be spread through elements of the environment by human and animal waste products, if not disposed properly. The development of effective water and wastewater treatment methods has virtually eliminated major water borne epidemics in developed countries. Developing countries like ours, where treated water is not available to a majority of the population, still experience epidemics like cholera and typhoid. It is also to be mentioned that as per the report of the Planning Commission for the Tenth Five Year Plan, which emphasizes that all cities, towns and industrial areas should compulsorily have sewage treatment plants and are to be implemented in a time bound manner. Advanced waste water treatment process is currently being so developed that it will produce palatable water from domestic wastewater.

Recommendations :

For treatment of waste water generated from the planning area, a decentralized wastewater treatment system would be more appropriate. The centralized sewage treatment system appears inappropriate as it may end up with very huge sizes of sewers and various issues of conveyance in handling this huge quantity of wastewater. The treatment plants and sewers are to be so aligned as to reduce the number of crossings with railway tracks and National Highways of the area. The proximities of natural drains for treated effluent disposal, minimum obstructions for laying sewers, and the possibilities of acquiring land for Sewage Treatment Plants (STPs) turns important in orienting and locating the plants. The possibilities of re-use of treated wastewater effluent for irrigation, gardening etc. should be looked into. The construction of treatment plants could be carried out in a phased manner on a modular/ zonal basis in the planning area consistent with the future development/demand



Proposed STP site at Athgaon Chapori *Figure-32*

6.14 SOLID-WASTE MANAGEMENT:

The collecting, treating, and disposing of solid material that is discarded because it has served its purpose or is no longer useful. Improper disposal of municipal solid waste can create, Un-sanitary conditions, and these conditions in turn can lead to pollution of the environment and to outbreaks of vector-borne disease—that is, diseases spread by rodents and insects. The tasks of solid-waste management present complex technical challenges. They also pose a wide variety of administrative, economic, and social problems that must be managed and solved.

The management of municipal solid waste is one of the main functions of all Urban Local Bodies (ULBs) in the country. All ULBs are required to meticulously plan, implement and monitor all systems of urban service delivery especially that of municipal solid waste. With limited financial resources, technical capacities and land availability, urban local bodies are constantly striving to meet this challenge.

As per data received from Dhing Municipality Board total waste generated per day in Dhing town is approximately 1.4 metric tons and collects about 1.00 tons from various source like households, commercial establishments , hotel, marketplace, drain cleaning and street sweeping, construction waste etc. Presently, following table depicts the nos. of vehicles and other equipment's used for solid waste management system by the Dhing Municipality Board.

Table 49: Vehicles and other equipment are used for solid waste management system.

Sl. No.	Item's	Nos.
1	Tricycle	16 Nos.
2	Tractor	2 Nos.
3	Puller	10 Nos.
4	Thela	5 Nos.
5	Tripper	2 Nos.
6	Mini JCB	2 Nos.
7	Composting Machine	1 Nos.
8	Safai Kormosari	13 Nos.

(Source: Dhing Municipal Board)

Report on Swachh Bharat Mission (U) under Dhing MB :

Table:-50 **Waste Management Report:**

Sl. No.	Component	Action Taken By MB	Remarks
1	Door to Door Waste Collection and Source Segregation	Door to Door Waste collection system implemented partially in all 10 nos. of Wards. Currently 65% of households, residential and Commercial premises in the city covered under door-to-door waste collection system. Source Segregation process is partially implement in 3nos of Wards.	
2	Waste Collection System	For Collection of Dry and Wet waste this MB has 1no of Tipper, 1no of Tractor, 10nos of Tricycle, 2nos of Mini Tipper, 1 no of E-Rickshaw. All Waste collection vehicles has partition for wet and dry waste.	
3	Day and Night Sweeping under Dhing MB	Day and Night Sweeping process is going on in commercial areas under Dhing MB. This MB also recently started Night Waste Collection process in Market areas of Dhing MB.	
4	Waste Processing Facility	Dhing MB has 1 no of Compost Machine, 1no of MRF centre, 1no of Community Pit Compost plant for Wet and Dry Waste process. One permanent RRR Centre (Reduce, Reuse and Recycle) will be install at Ward No. 1 Shortly.	
5	Identification of Rag Pickers for Dry Waste	Dhing MB has identified 3nos of t Rag Pickers. This MB is going to sale the Segregated Dry Waste to the identified Rag Pickers. The Rag Pickers will collect the Segregated Dry waste from MRF center directly. Id Card issued against all Rag pickers.	
6	Helpline Number	Yes, Available (9101057232)	
7	Social Media handle	Facebook and Twitter	
8	Awareness Activities	Awareness activities like Miking, Ward wise Meetings, Distribution of Leaflets, Door to Door visit, Swachh green event are carried out by Dhing MB with the help of SHG, NGO members, Local citizen of Dhing Town area.	
9	Dumping Ground Status	20 Bighas (3 Bighas out of 20 Bighas is identified for STP) Dag No 830 Kisam, Dhing.	
10	ODF+ Status	Dhing Municipal Board had achieved ODF+ on 5th of January, 2024.	

11	Elimination of GVP and Yellow Spot	This MB eliminated 2nos of GVP Point and 3nos of Yellow Spot recently.	
12	Safaimitra Sureksha Seher	Dhing Municipal Board organized recently Health Check-up camp for all Safai karmacharies under Dhing MB on 22nd of May,2024 by the Medical Team of Dhing FRU.	
13	Ban on Single Used plastic	Dhing Municipal Board has conducted Single Use Plastic Drive on 9th of Feb, 2024 and approx. 55 kg single use plastic has been seized by This MB. Trying to increase the drives on single use plastic(SUP) in the upcoming days.	
14	Swachh Servekshan2024	As per direction of Mission Director, SBM(U) a survey of Bulk Waste Generator (More than 100 kg/Per Day Waste generator) has been carried out under Dhing MB and No Bulk Waste Generator found under Dhing Municipal jurisdiction. We have also collected self-declaration of Non BWG from various commercial establishments.	

Current MSW Management of Dhing Municipal Board:

Table:-51

On basis of Waste Characterization, quantity of waste generated (in TPD), and waste processed.

MSW Waste Stream	Quantity of waste generated in TPD(Tons per day)	Quantity of waste processed in TPD (Tons per day)	% of MSW processed
Wet Waste	0.8	0.4	50%
Dry Waste	0.6	0.2	34%
Plastic Waste	0.03	0.02	70%
Sanitary Waste	0.001	0	0%
Domestic Hazardous Waste	0.002	0	0%
Other Waste (Drain Silt & Inert)	0.005	0	0%
Total	**1.438**	**0.62**	**43%**

Challenges Faced:

- Lack of adequate Fund, Behavioral Change of the general public regarding waste segregation.

Source: CPO, SBM, Dhing

QUANTITY OF WASTE GENERATED

The quantity of MSW generated depends on numerous factors such as population, food habits, standard of living, degree of commercial activities and seasons. The increasing urbanization and changing lifestyles have increased the waste generation rate of Indian cities.

Criteria for assessing waste generation

- Projected populations for the design period
- Existing per-capita waste
- Annual rate of increase of per capita waste generation
-

SOLID WASTE DEMAND PROJECTION

Based on the CPHEEO standards, following assumption were considered while estimating the volume of the solid waste and required area for the landfill site for the proposed urban population for the horizon year 2045:

- It is assumed, that MSW will be collected by responsible authorities at regular basis
- Characteristic of the collected MSW in the region will be the in consistent with the characteristics mentioned in CPHEEO manual.
- Per Capita Solid Waste Generation 270 Grams per Capita per Day

Table:-52

Sl. No.	Particulars	Demand for 2045
1.	Projected Population	1, 13,291
2.	Solid waste Generation (in Urbanation area @ 270 gm./cap/day)	30.58 MT

(T&C.P Compilation)

ISSUES IN PRESENT SYSTEM

Lack of Disposal Site

Presently, there is no engineered landfill, and Municipal Solid Waste is dumped in open area, which can lead to ground water and soil pollution, vector naissance etc.

Lack of Primary Collection System

Solid waste is discharged by establishment into open plots, open drains etc. these un-organized disposal methods have resulted in the accumulation of solid waste on roadsides, vacant plots, and storm water drains. This has resulted in a number of hygiene related problems such as breeding of flies/ mosquitoes and stray animals.

Un-hygienically Solid Waste Transportation

Municipal Solid Waste is transported primarily in open vehicles i.e. trucks, tippers and cycle rickshaw. It is also observed that these modes of transportations are overloaded with MSW, resulting in the littering of roads during transportation. The loading and unloading of waste are carried out manually, and Safai Karmacharis involved in these activities do not use any safety measures.

In-sufficient collection and disposal of construction waste

The construction and demolition waste generated by residents is transported in tractor trolleys and disposed at either secondary collection points or open/low-lying areas in the town vicinity.

Handling of MSW with Slaughter Waste

Waste from the slaughters houses is disposed in open dumping sites, although there are provisions for separately disposing slaughter house waste in Nagaon town / planning area.

Disposed of Bio-medical waste without any treatment

Presently, there is no treatment facility available for bio-medical waste in Dhing and Medical waste is disposed off along with general MSW

Lack of primary Collection points

Unattended waste lying in open areas is common phenomena in the entire town because of non-availability of required numbers of bins in the planning area

Multiple Handling of Wastes

The waste is handled multiple times leading to potential health hazards for the workers as all types of wastes contains hospital waste, human waste etc. are disposed in the same containers.

Lack of Awareness

There is absolute lack of awareness among people w.r.t. handling and management of waste.

PROPOSED STRATEGIES

Decentralized solid waste treatment system:

The developmental pattern of all the areas, especially Dhing, demands the implementation of an integrated solid waste treatment system. It is felt that only a decentralized MSW Management System could help solve the seemingly intricate problem of solid waste treatment in this area in an economically viable, socially desirable and environmentally sound manner.

Public Participation:

General environmental awareness and information on health risks due to improper solid waste management are important factors which need to be continuously communicated to all sectors of the population. Building awareness among public and community about the need for a better solid waste management system is as essential as management. Public awareness and attitudes to waste can affect the people's willingness to cooperate and participate in adequate waste management practices. If people keep on throwing waste on the streets indiscriminately, the local body alone cannot keep the city clean in spite of their best efforts .Thus, it is very important to make people understand that the treatment and management of solid waste is a collective responsibility of the local authority and the community. Municipalities or local governments through participatory programs should convey this message to the people.

Collection Enhancement facilities:

- Old dustbins are to be replaced with different types of covered dustbins, which reduces the time of pickup and improves the process of primary collection of wastes.
- Sweepers may be provided with handcarts and detachable containers and be allotted a fixed area or number of houses for door to door collection. They should also be provided with safety gears and proper uniforms.
- It can be made compulsory for the management of societies/complexes to keep covered bins in which waste is to be stored at acceptable locations, to be picked up by the municipal staff.
- The local body may collect waste from community bins by using container handcarts or tricycles whichever may be convenient, for transferring the wastes to the waste storage sites by employing municipality sweepers
- The collection service can be provided on a full-cost recovery basis using contractor services on a day to-day basis from individual houses.
- The collection service can be provided on a full-cost recovery basis using contractor services on a day to-day basis from individual shops also. The service of rag pickers and part-time sweepers can also be used in agreement with the shop owners.
- Sweeping of all public roads, streets, and lanes, by-lanes where there is habitation or commercial activities on either side of the street should be done daily. A list of such streets and roads together with their length and width should be prepared. The local body, keeping in view the norms of work prescribed should work out a program for their daily cleaning. However, roads and streets where there is no habitation around and do not require daily cleaning may be put in a separate group.

Provision of Solid waste Storage:

One of the immediate measures to revamp the existing collection services structure would involve provision of covered community waste bins at proper distances for the people to deposit domestic waste. This is the first step that will ensure that people do not throw their garbage on the roads and hence do not create open dump sites. This will enable the sanitation workers to transfer waste to the transportation vehicle quickly and efficiently with minimum health risk which will also help to maintain the aesthetics of the surroundings.

The Municipal solid waste (Management and Handling) Rules 2000 of the Government of India have prescribed the compliance criteria for waste storage depots as under:

- Storage facilities shall be created and established by taking into account quantities of waste generation in a given area and the population densities. A storage facility shall be so placed that it is accessible to users.

- Storage facilities to be set up by municipal authorities or any other agencies shall be so designed that waste stored are not exposed to open atmosphere and shall be aesthetically acceptable and user friendly.

Storage facilities or "bins" shall have "easy to operate" design for handling, transfer and transportation of waste. Bins for storage of biodegradable waste shall be painted green, those of recyclable waste shall be painted white and those of other wastes shall be painted black.

- Manual handling of waste shall be prohibited. If unavoidable due to constraints, manual handling shall be carried out under proper precaution with due care for safety of workers. So, the storage and handling of SW are extremely important, and hence the steps to be taken by the Municipal authorities for storage of solid wastes are detailed in table below:-

Table:-53

SL. No.	Generation Source	Action proposed
1	Residential	• Not to throw any waste in neighbourhoods, on streets, open space, and vacant lands, in drains or water bodies. • Keep food waste/biodegradable waste in a non-corrosive bin type-D1 • Keep hazardous waste separately • Keep dry/recycle waste in bin type-D2

2	Multi-storied Building, Commercial complexes, private societies	• 1 to 4 as above. • Provide separate bin type-B large enough to hold wastes generated both biodegradable and recycle. • Direct member of the association/society to deposits waste in bins provided. Sanitary inspectors should vigil the area and fine should be imposed for not following the actions.
3	Slums	• 1 to 4 as above • Use bin type-c
4	Shops, offices, institutions	• 1 to as above • Store the waste in bin type-D1, D2
5	Hotels and restaurant	• 1 to 4 as above • They should arrange their own bins and dispose waste in nearby municipal bins.
6	Vegetables, fruit markets, meat, fish markets, and street vendors	• Keep small baskets with them and transfer waste to large bin type-A • Shops keepers not to dispose of the waste in front of their waste or shops or open space. • Deposit waste as and when generated into bin type-a • Fines should be imposed for not following the action.
7	Marriage Halls, Community Halls	• 1 to 4 as above • Provide a large bin type-B
8	Garden Waste	• Compost the waste in garden itself, if possible. • Store wastes in large bags or bins and transfers it to community bins.

Segregation:

These compositional characteristics of the solid waste underline the need for proper segregation before treatment. Proper segregation of waste into different components and their separate collection can definitely lead to remarkable changes in the entire system.

The segregation of the waste would be a long drawn exercise as it involves attitudinal changes in people and will have to be done with careful planning, in a phased manner. The general public is to be first sensitized towards the whole concept and educated about the need and advantages of doing the segregation. Segregation of waste at the source itself is extremely important as municipal solid waste, which is otherwise environmentally benign on getting mixed with hazardous waste like paints, dyes, batteries, and human excreta turns hazardous. The recyclables like paper and plastic etc. become unsuitable for recycling as these get soiled by the organic matter.

Although, it would be more fruitful to sort and place different kinds of recyclables in separate receptacles, the waste could be segregated into at least two categories of biodegradable and non-biodegradable initially. The recyclables obtained through segregation could be straightway transported to recycling units which in turn would pay certain amount to the corporations, thereby adding to their income. This would help in formalizing the existing informal set up of recycling units, and this formalization in turn could lead to multi-advantages. The biodegradable matter could be disposed off either by aerobic composting, anaerobic digestion or sanitary land filling. Depending upon land availability and financial resources, either of these disposal methods could be adopted. Though simple land filling is the traditionally practiced system of solid waste management in the planning area, aerobic composting by wind-row method will be an appropriate option. All the non-biodegradable waste which is non-recyclable, non-reusable shall be dumped into sanitary land fill. Biodegradable waste shall be subjected to composting. Area required for composting shall include the area for storage of unprocessed material, processing facilities for composting operation and storage for green compost.

The area required for windrow composting with 15 days composting period with moisture content between 55-60% for aerobic composting, the first turning shall be done at the 4th day and thereafter every third day shall be 1.5 acres to 2 acres per 50 MT per day waste.

Reuse and Recycling:

The concepts of reuse and recycling can well be applied in solid waste management as solid waste is basically a heterogeneous mixture. In typical Indian municipal solid wastes, there is a small percentage of recyclable material and more of compostable and inert materials like ash and road dust. There is a very large informal sector of rag pickers, who can collect recyclable wastes (paper, plastic, metal, glass, rubber, etc.) from the streets, bins and disposal sites for their livelihood. Thus, the rag pickers can be effectively used for the collection of reusable materials especially because the use of non-recyclable packaging materials like PET bottles for soft drinks, mineral wastes, and soft -foam products and metalized plastic film coated food packing materials are on the rise. During recycling, many of these release toxic gases and ozone depleting products.

So it is advisable to educate people to replace these items with eco-friendly packaging materials. The desirable home sorting mechanisms includes dry recyclable materials (e.g. glass, paper, plastic, cans etc.), kitchen and garden wastes, bulky wastes, hazardous wastes, construction and demolition wastes. Sorting can also be done just prior to waste processing or land filling.

Energy from Solid Waste:

Electricity can be produced by burning MSW as a fuel. MSW power plants, also called waste-to-energy (WTE) plants, are designed to dispose of MSW and to produce electricity as a by-product of the incinerator operation. Mass Burn is the most common waste-to-energy technology, in which MSW is combusted directly in much the same way as fossil fuels are used in other direct combustion technologies. Burning MSW converts water to steam to drive a turbine connected to an electricity generator. Burning MSW can generate energy while reducing the volume of waste by up to 90 percent, an environmental benefit. However, this burning MSW in WTE plants produces comparatively high carbon dioxide emissions, a contributor to global climate change. The net climate change impact of these emissions is lessened because a major component of trash is wood, paper and food wastes that would decompose if not burned. If left to decompose in a solid waste landfill, the material produces methane, a potent greenhouse gas. The concept of producing energy from MSW derives significance as it is given high priority by the Ministry of Non-Conventional Energy Sources (MNES), Government of India.

Treatment options:

The biodegradable portion of the waste is considerably high. So, aerobic composting of SW after proper segregation will be more appropriate. In selected locations especially in rural areas, Vermi-Composting can also be recommended. The manure obtained by these methods can be sold to the local public as fertilizer. Though costly, sanitary land filling can also be practiced at selected urban locations where the recovery from the waste will be very high, serving minimum ecological damage. It appears that the aerobic composting by Windrow method may be a desirable option for the management of the solid waste. The possibilities of generating energy from SW could be looked into on an experimental basis.

Biomedical wastes and its management:

Biomedical waste has been a growing concern because of the awareness in public regarding HIV, AIDS and Hepatitis B and exposure to discarded needles, syringes and other medical waste from municipal garbage bins and disposal sites.
The management of biomedical waste turns important as it has serious bearing on the quality of human life. This becomes more significant especially in the context of the recent trend of establishing multispecialty hospitals in urban centres. Biomedical waste can be regarded as any waste generated during the diagnosis, treatment or immunization of human beings or animals or produced due to activities of biological research, human anatomical waste, animal waste, microbiology and biotechnology waste, waste sharps, discarded medicines and cytotoxic drugs, solid wastes, liquid waste, incineration ash, chemical waste, etc. Medical wastes contain pathological waste (such as human tissues such as limbs, organs, foetuses, blood and other body fluids), infectious waste (soiled surgical dressing, swab material in contact with persons or animals suffering from infectious diseases, waste from isolation wards, cultures or stocks of infectious agents from laboratory, dialysis equipment, apparatus and disposable gowns, aprons, gloves, towels, etc.), sharps (any item that can cut or puncture such as needles, scalpels, blades, saws, nails, broken glass, etc.), pharmaceutical waste (drugs, vaccines, cytotoxic drugs and chemicals returned from wards, outdated drugs, etc.), chemical waste (any discarded solid, liquid or gaseous chemicals from laboratories, cleaning and disinfection) etc.

Implementation of Bio-medical Wastes (Management and Handling) Rules, 1998

The Ministry of Environment and Forests issued the Bio-medical Wastes (Management and Handling) Rules, 1998 which were amended subsequently. These rules provide for segregation, packaging, transportation, storage, treatment and disposal of wastes generated by hospitals, clinics and laboratories. Bio-medical wastes (BMW) have been classified into various categories and the treatment and disposal options for each of the categories are specified. The treatment and disposal should be in compliance with the standards prescribed in Schedule V, which stipulates standards for incinerators (operating and emission standards), for waste autoclaving, for liquid waste, of microwaving and for deep burial. A schedule for implementation of BMW rules has been laid down in Schedule VI.

Imposing segregated practices within hospitals to separate biological and chemical hazardous wastes that will result in a clean solid waste stream, which can be recycled easily. An Advisory Committee is to advise the prescribed authority on the implementation of these Bio-

Processing and disposal of solid waste

medical wastes (Management and Handling) Rules.

The solid waste can be processed by composting, vermi-composting, anaerobic digestion, sanitary land filling, incineration or any other biological processing for stabilization of wastes. Since it contains a high amount of biodegradable portion, composting may be a cost-effective option for processing. The process of microbial composting or vermi-composting may be adopted with least mechanization to keep the cost low, and to market the compost as fertilizers to adjoining villages. So the concerned municipalities are duty bound to earmark required acres of land to meet the requirement of solid waste treatment. The areas of existing dumping yards can also be developed. The rejects from these plants and domestic hazardous wastes may be carefully landfilled. The bio-medical wastes may be disposed off as per the Bio-Medical Waste Management and Handling Rules as described above.

A decentralized treatment system will be more feasible option for solid waste treatment. In combination with primary waste collection, composting improves the precarious waste situation in the communities, and residents become less dependent on the poor municipal waste collection service. Decentralized composting can be operated by an appropriate technology and implemented at reduced investment and operating costs. Manual composting in small, decentralized plants is more easily integrated in the prevailing level of development in India and the socio-economic background, as it requires labour-intensive processes. It will create employment opportunities and a source of income to the underprivileged people in the rural Dhing. Decentralized composting allows reuse of organic waste where it is generated, thereby reducing waste quantities to be transported as well as transport costs. This may drastically reduce the overall cost of

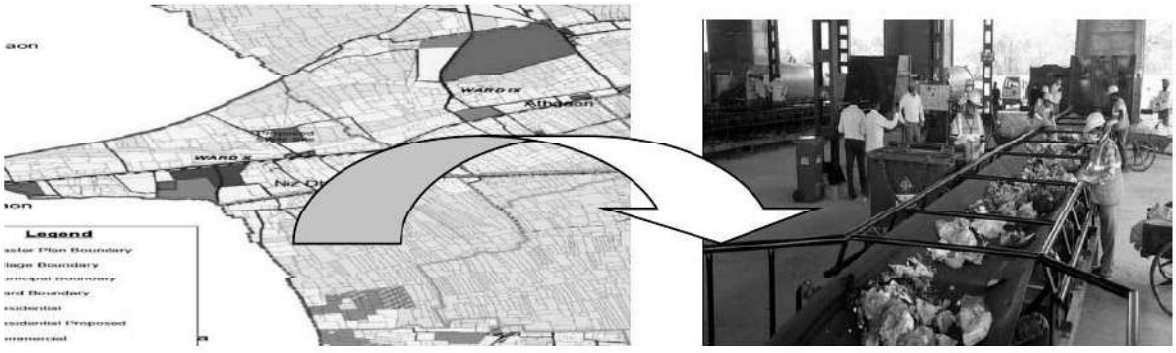
Proposals for Solid Waste Treatment

Municipal solid waste treatment:

The solid waste generation expected in Dhing Planning Area by 2045 is very high, providing compost treatment facilities for this huge quantum of wastes, though essential, may not be practically possible in a single phase. So, it is necessary to propose economically feasible and, technically viable solutions which can be implemented in a phased manner. The densely populated urban areas of NMPA are to be given first priority in providing the composting facilities for solid waste treatment. The area required for solid waste

Disposal of Hazardous Waste

Treatment and disposal facilities will be 8 hectares. The Notification from the Government of India, Ministry of Environment dated 20th July 1998, which deals with the collection of Bio-Medical Wastes entrusts the liability of its disposal with the waste producer itself. Thus the management of bio-medical waste is not the responsibility of Municipalities. But, however, they can assist in the management of biomedical wastes on a full cost recovery basis without sharing any legal responsibilities. It is advisable to have bio-medical facility for the entire Dhing Planning Area. The bio-medical wastes collected from spots can be stored in selective transfer stations and can be transported to this central treatment facility at Ward No-10, Niz-Dhing Kissed, Dag No-830 (new) Eastern side of planning area. If so desired, the authorities can formulate an action plan for implementing this plant through some competent agencies and can suitably charge for the treatment and disposal of bio-medical wastes. The solid waste dumping sites closest to industrial sites will be a more appropriate option.



Proposed Solid Waste Management site at Ward No-10, Dhing Town *Figure-33*

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CHAPTER 7
ENVIRONMENT AND TOWN BEUTIFICATION PLAN

Description of eco-friendly areas like water bodies; beels; forests; and also heritage areas:-

Eco-friendly literally means earth-friendly or not harmful to the environment (see References 1). This term most commonly refers to products that contribute to green living or practices that help conserve resources like water and energy. Eco-friendly products also prevent contributions to air, water and land pollution.

7.1 ECO-FRIENDLY AREAS OF DHING:-

Leteri Beel: -

Leteri Beel flows in the Northern side of the Dhing Master Plan Area. This is mainly a tributary which connects with the mighty River Brahmaputra. This river plays an important role for the entire Dhing region. This River has immense contribution to the agricultural sector as water of this beel is used in the irrigation for Agriculture. This river is perennial and depends on the water of the river, different types of Kharif and Rabi crops have been cultivated in different season. Dhing region is famous for vegetables cultivation and Aquaculture of Ornamental fish which contributes to the economic Development of the region

(Wet land Area, DMPA) *Figure-34*

This Beel is rich in aquatic living organism. Therefore is a ground of fishing centre for the common people. Water of the River is used in irrigation for the cultivation different crops specially Paddy cultivation surrounding the drainage basin. Local fish found in the river are Sal, Barali, Bahu, Kuchia, Rahu, Bhakua etc. There are so many temporary are as well as permanent Fish market were found on the ghats of the River, which provides livelihood to the people of the Area.

Lateri Beel, Dhing *Figure-35*

Tolibor Beel:-

Tolibor Beel is located in the Dhing Town Area. It covers an area of 3 Sq.Km (approx.) The Bill is very rich in aquatic living organism and a rich bio-diversity. The beel is endowed with rich floral and faunal diversity. In addition to these, huge congregation of residential water birds, seasonal migratory Birds, etc.

The water body is perennial. In recent time, some portion of land use changes takes place due to illegal encroachment of land for housing and agricultural purpose. The fringe area of the Beel is used for paddy and other crop production.

Biodiversity of the Tolibor Beel

Flora:- Various types of flora and fauna are found in Tolibor Beel. Beel is rich in floral diversity. Some of the flora found were Bih Mateka, Dal Ghah, Boss, Jora, Kola kochu, Mati Kanduri, kalmou, sorupani, Pani meteka, Pani lokosi, Bhet, Bihlongoni etc.